



Economic assessment of a nurse-led heart failure liaison service in NHS Tayside

A heart failure specialist nursing service in NHS Tayside delivers high-quality, patient-centred care at home that improves patient outcomes, cuts hospital admissions and avoids costs of over £250,000 per year.

Understanding the service

Chronic heart failure is a major public health problem in Scotland. Patients often require frequent, prolonged and costly admissions to hospital and readmission rates can be high¹. Symptoms, such as fluid retention, breathlessness, reduced physical capacity and mental health issues, can have a severe impact on patients' quality of life.

NHS Tayside's Heart Failure Nurse Liaison Service (HFNLS) was developed in 2004 to ensure that patients with chronic heart failure receive high-quality, evidence-based care that helps keep them at home and out of hospital. Prior to the introduction of the service, patients had no access to specialist heart failure expertise in the community and a base-line audit showed the rate of readmissions to hospital was substantial. The decision to establish the HFNLS was based on strong evidence that a home care specialist nursing service can improve the outcomes for patients with chronic heart failure, reduce readmissions and shorten the length of hospital stays².

The HFNLS is delivered by a team of highly-qualified heart failure specialist nurses who provide a home-visiting service to patients with chronic heart failure due to left ventricular systolic dysfunction (LVSD). Patients with LVSD are referred to the team if they are still symptomatic following a hospital admission or out-patient clinic assessment.

The specialist nurses visit patients at home and carry out telephone consultations. They develop patient-centred care plans, provide expert clinical assessment, prescribe and manage medication, and order investigations,

¹ McMurray JJ and Stewart S Epidemiology, aetiology, and prognosis of heart failure. *Heart* 2000;83:596-602

² Blue L, Lang E, McMurray JJV, Davie AP, McDonagh TA, Murdoch DR, Petrie MC, Connolly E, Norrie J, Round CE, Ford I and Morrison CE (2001) Randomised controlled trial of specialist nurse intervention in heart failure *BMJ* 2001;323:715

delivering care to national best practice clinical guidelines on the management of chronic heart failure³. There is a strong focus on working in partnership with patients, family and carers, in order to support patients to self-manage their condition. The service has a rapid response facility and liaises closely with GPs, district nurses, pharmacists and social care, as well as specialist palliative care services.

The HFNLS operates out of Ninewells Hospital and provides a resource covering the NHS Tayside area. Tayside is a large region covering both urban and rural areas with a population of just over 400,000. In 2011-12, the period covered by this study, 515 patients used the service. This has now increased to over 600 patients a year.

Key benefits of this innovation

For those using the service:

The delivery of high quality and consistent patient-centred care is at the heart of the HFNLS. The team works closely with patients and carers to develop patient-centred care plans, acting in a liaison role to co-ordinate care across different services. Patient and carer satisfaction of the service is very high. 100% of patients reported 'excellent' or 'very good' satisfaction in areas such as listening, understanding concerns, positivity, care and compassion, helping patients take control and making plans of action together⁴.

Managing the significant symptom burden of chronic heart failure is key for improving patients' quality of life. The service's specialist heart failure nurses have the clinical expertise to manage and respond to changes in patients' symptoms quickly. In 2011/12, 515 patients using the service were assessed using the internationally recognised New York Heart Association classification tool. 86% of patients reported that their symptoms had improved or were stable.

The use of both Anticipatory and Advanced Care Plans together with the service's rapid response facility also helps to manage patients' symptoms and keeps patients at home and where appropriate, out of hospital. In 2011-12, only 8.3% of LVSD patients referred to the HFNLS were re-admitted to hospital, compared to 26.7% of patients with LVSD not managed by the service.

To the healthcare system:

The HFNLS has clear benefits to the healthcare system, avoiding substantial costs by reducing re-admissions, shortening length of stay in hospitals and lessening the burden on primary care services.

The rate of readmission for patients managed by the HFNLS is 68% lower than patients with LVSD not referred to the service (8.3% readmission rate

³ Scottish Intercollegiate Guidelines Network (2007) SIGN 95 Management of Chronic Heart Failure: A national clinical guideline

⁴ Survey of 50 patients, 90% response rate using the University of Glasgow's validated Consultation and Relational Empathy (CARE) measure tool

compared to 26.7% in 2011-12). The avoided costs from reducing admissions is **£303,518⁵**.

Those patients managed within the HFNLS who are readmitted have a shorter length of stay in hospital by 4.8 days (average 17.3 days compared to 22.1 days for patients not managed by HFNLS).

If all suitable patients with heart failure due to LVSD were referred to HFNLS, this would avoid further costs of **£93,635 – £148,933** per year.

The HFNLS also reduces the burden on primary care services because the management of heart failure is primarily delivered by heart failure specialist nurses rather than general practice teams. Delivering this level of evidence-based care by general practice teams would involve additional costs. In 2011-12, the HFNLS avoided costs to the Community Health Partnership (CHP) of **£151,410**. Furthermore, this means that GPs are freed up to spend more time with other patients.

Costs avoided from reducing hospital admissions:	£303,518
CHP primary care costs avoided:	£151,410
Annual running cost for HFNLS:	- £202,604
Overall costs avoided:	£252,324
Average return on investment (ROI) per patient/per year:	£489

If including further estimated £93,635 - £148,933 cost avoidances from improved referral rates to HFNLS and reduced rates of re-admission:

Potential overall costs avoided:	£345,959 - £401,257
Potential ROI per patient/per year:	£671 - £779

To the wider health and social care system:

The Scottish Government is committed to ensuring that everyone lives longer, healthier lives at home or in a homely setting⁶. The HFNLS embodies the Scottish Government's 2020 vision and its health care strategy⁷; it delivers high quality, safe, effective and person-centred care to people at home, supports them to self-manage their condition and minimises the risk of them going back into hospital.

Best practice clinical guidelines recognise that specialist nursing is an integral part of managing patients with chronic heart failure and acknowledge its importance in providing support and care to patients at home³. The heart

⁵ All pound signs throughout the case study are in 2013 values

⁶ Scottish Government (2011) Achieving sustainable quality in Scotland's healthcare – A '2020' vision

⁷ Scottish Government (2010) NHSScotland Quality Strategy – putting people at the heart of our NHS

failure specialist nurses in the HFNLS work at an advanced level of nursing practice, with the clinical expertise, knowledge and experience to make complex and autonomous clinical decisions about their patients' care. The Royal College of Nursing (RCN) Scotland recently highlighted the vital contribution that nurses working in these senior clinical decision-making roles play in improving outcomes for patients and the health service as a whole^{8,9}.

With pressures on the health system growing, these types of nursing services are increasingly important. The Academy of Medical Royal Colleges and Faculties in Scotland and RCN Scotland have voiced their concerns on the future sustainability of the NHS in Scotland¹⁰. They have called for action, including new ways of delivering care and improving inter-professional working, both of which the HFNLS delivers.

Services such as HFNLS should not be considered a luxury, but as an essential that will improve the sustainability of the health service and help achieve the 2020 vision at a national level and at an individual level for every patient who may need it.

Key costs of this innovation:

There were no initial set-up costs to the HFNLS. In 2011-12, the operational costs were **£202,604** made up of:

- | | |
|------------------|----------------------------------------------|
| Staffing: | - 3 x heart failure specialist nurses Band 7 |
| | - 1 x 0.5 physiotherapist Band 7 |
| | - 1 x 0.8 administrative support Band 3 |
| Other resources: | - Clinical supplies |
| | - Training budget |
| | - Physical resources e.g. office furniture |
| | - Service equipment |
| | - Stationery |
| | - Travel costs |

Experienced, senior nursing staff are vital to the success of the service. Though it is not cheap to run, the return on investment, through reducing admission costs and lessening the burden on primary care, clearly provides value for money and demonstrates best use of resources, in addition to the significantly improved patient outcomes.

⁸ Royal College of Nursing Scotland (2015) Nurse Innovators: clinical decision-making in action available at: http://www.rcn.org.uk/data/assets/pdf_file/0005/633470/SC0511-Nurse-Innovators-Report.pdf

⁹ Taylor, P (2015) *The heart of the matter* available at: http://www.rcn.org.uk/data/assets/pdf_file/0008/633482/SC0511-Nursing-Innovators-Case-Study-Jill-Nicholls.pdf

¹⁰ Academy of Medical Royal Colleges and Faculties in Scotland and Royal College of Nursing Scotland (2015) *Building a more sustainable NHS in Scotland: Health professions lead the call for action*

Background to this economic assessment:

During 2012/13 The Office for Public Management and the Royal College of Nursing delivered a collaborative learning programme designed to empower nurses to understand, generate and use economic evidence to continuously transform care¹¹. The programme, funded by the Burdett Trust for Nursing, aimed to engage up to 60 nurses across Scotland, Wales and Northern Ireland.

The author of this report, Jill Nicholls is a Heart Failure Specialist Nurse with NHS Tayside's HFNLS and is seconded part-time to serve as one of the Scottish Government's Heart Failure Hub Co-ordinators. She chairs the Heart Failure Nurse Forum in Scotland and also sits on the Scottish Intercollegiate Guidelines Network (SIGN) heart failure review group.

Directors of Nursing have made an important contribution, by supporting nurses' participation and managing organisational agreements to share the learning. The programme partners would like to thank NHS Tayside for their support of Jill Nicholls.

Economic assessment completed June 2013

This case study summary published September 2015

¹¹ The following guide was developed to support the RCN and OPM's work:
Sin, C H (2015) A guide to economic assessment in nursing, OPM. Available at:
<http://www.opm.co.uk/publications/a-guide-to-economic-assessment-in-nursing/> (last accessed 25/09/2015)

NHS Tayside Heart Failure Nurse Liaison Service (HFNLS)

Inputs

Investment

Set up costs: None

Operational costs: £202,604 per year (broken down below)

Staffing

- › 3 x Band 7 Heart Failure Specialist Nurse
- › 1 x 0.8 Administrative Support
- › 1 x 0.5 Physiotherapist

Other resources

- › Clinical supplies
- › Training budget
- › Physical resources e.g. office furniture
- › Service equipment
- › Stationery
- › Travel costs

The service

Service use

- › Patients with heart failure due to Left Ventricular Systolic Dysfunction (LVSD), either post admission or remain symptomatic/complex at out-patient clinic assessment
- › Total 515 patients in service 2011-12
- › Patient discharge if stable >6 months and on optimal medication

Services

- Home visiting model:
- › Individual management plan
 - › Expert symptom and clinical assessment
 - › Optimise medication management
 - › Investigations
 - › Multi-disciplinary team working across all sectors of care
 - › Patient and carer education
 - › Self-monitoring
 - › Rapid response service
 - › Palliative care

Summary of benefits

For service users

- › 86% of users report stable or improved symptom control based on internationally recognised New York Heart Association classification tool
- › Reduction in hospital readmissions from 26.7% to 8.3% of LVSD patients
- › Length of stay reduced by average 4.8 days for those who are admitted
- › High levels of patient satisfaction with HFNLS measured using University of Glasgow CARE measure tool

For healthcare system

- › Hospital admissions costs avoided **£303,518**
- › CHP primary care costs avoided **£151,410**
- › Annual running cost for HFNLS - £202,604
- › **Overall costs avoided £252,324**
- › **Average return on investment £489 per patient/per year**

If referral rates improved:

- › **Potential overall costs avoided £345-959 - £401,257**
- › **Potential return on investment £671-779 per patient/per year**