

Quality and Productivity: Proven Case Study

Cardiovascular disease: integrated care pilot to improve patient outcomes closer to home

Provided by: British Heart Foundation

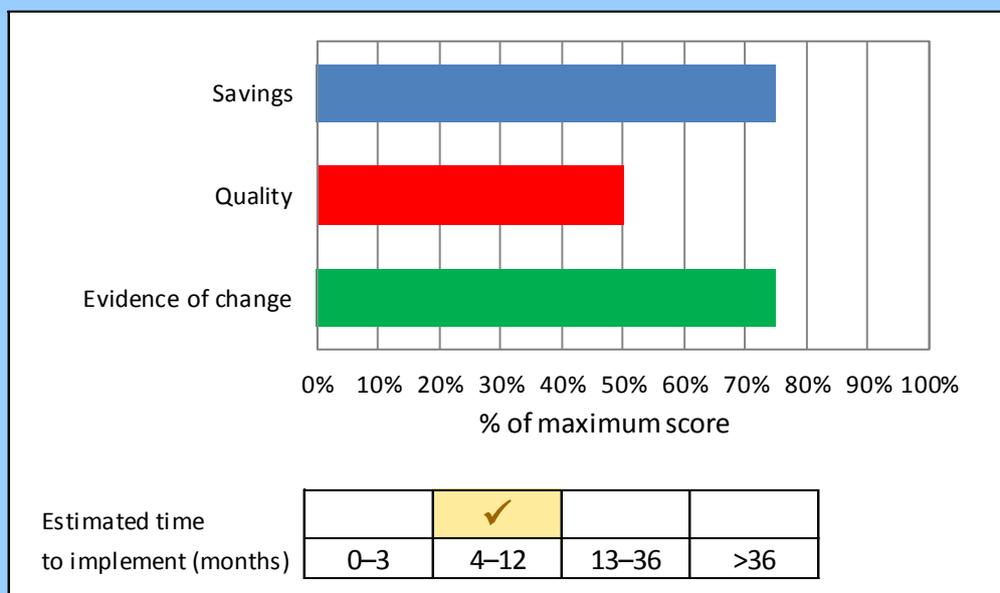
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Sharing good practice: What are 'Proven Quality and Productivity' case studies?

The NICE Quality and Productivity collection provides users with practical case studies that address the quality and productivity challenge in health and social care. All examples submitted are evaluated by NICE. This evaluation is based on the degree to which the initiative meets the Quality and Productivity criteria: savings, quality, evidence and implementability. The first three criteria are given a score which are then combined to give an overall score. The assessment of the degree to which this particular case study meets the criteria is represented in the summary graphic below.

Proven Quality and Productivity examples are case studies that show evidence of implementation and can demonstrate efficiency savings and improvements in quality.

Evidence summary



Details of initiative

Purpose	<p>This 2-year pilot's purpose was to develop or redesign models of care for people with cardiovascular disease (CVD). It aimed to:</p> <ul style="list-style-type: none">• develop the case for an integrated approach for people living with CVD and comorbidities;• improve survival, quality of life and self-management and to prevent exacerbation of conditions that can be managed in primary care;• promote integration of primary and acute services to reduce duplication of care, reduce frequent hospital admissions and provide a cohesive care journey close to people's homes.
Description (including scope)	<p>The British Heart Foundation (BHF) funded and evaluated a 2-year project at 9 NHS organisations across the UK. This case study is based on the East Cheshire project. Within the context of a growing elderly population and better survival of people with CVD conditions, this project aimed to support patients to remain in the community for as long as is clinically possible, avoid hospital admissions and reduce length of stay.</p> <p>The aims of the programme were to:</p> <ul style="list-style-type: none">• provide a better experience for patients and carers;• enhance patient and carer understanding of their condition;• review and improve the patient's wider care planning;• enable people to have better coordinated care closer to home with supported self-management. <p>As part of the pilot programme, the BHF commissioned ICF International, an independent evaluation company, to evaluate the integrated care service with the aim of highlighting patient outcomes, healthcare professional outcomes and system-level efficiencies and effectiveness.</p>
Topic	End of life care, Long-term conditions
Other information	<p>There are over 7 million people living with CVD in the UK (BHF 2014) and the prevalence of CVD is increasing due to the combined effect of medical advances and an ageing population. It is one of the largest causes of mortality and disability in the country (Levenson et al. 2002). CVD is a long-term condition that is often associated with comorbidities such as diabetes, hypertension and obesity (Department of Health [DH] 2013). It is estimated that over 3 million people will have multiple long-term conditions by 2018, (DH 2012). It is estimated that around half a million (Health and Social Care Information Centre [HSCIC] 2015) people in the UK are living with HF, but there are many more undiagnosed cases. Approximately 1 million patients with HF</p>

Quality and Productivity: Proven Case Study

have AF and approximately 1.3 million have had a stroke (BHF 2014). There is inequitable service provision for HF, cardiac rehabilitation and AF across the UK, creating a large discrepancy in access to treatments (BHF 2015).

People living with CVD often have complex requirements around medication optimisation, management of comorbidities and social care support. An integrated approach to improving the interface between primary, community and acute services (DH 2013; HSCIC 2015) can help people to have a better quality of life by improving access to treatment and care, avoiding unnecessary hospital admission and utilising NHS resources and workforce better. It was hypothesised therefore that this new model of care for cardiac patients by generic cardiac specialist nurses would support the Long Term Conditions agenda but acknowledged that this might initially create barriers to care delivery because it challenged usual ways of working. However, resistance was minimal and the changes to usual practice rapidly became the accepted norm.

Savings delivered

Amount of savings delivered

A cost-benefit analysis for the life of the project was conducted. It did not include estimates of future benefits accruing from the projects, or wider benefits to society (such as productivity gains or better patient experience). The following analysis was carried out locally at East Cheshire for a population of 470,000.

Project Savings and Costs for the two year period are set out in the table below.

Savings	
Saving from reduction in bed days	
Angina	642
MI	1,112
AF	721
HF	1,166
Total bed days saved	3,641
Cost per bed day	£275
Saving from a reduction in bed days	£1,001,275
Saving from avoided hospital treatments	
Hospital treatment avoided	120
Cost per treatment	£2,512
Savings from Hospital treatment avoided	£301,440
Total savings	£1,302,715
Costs	
Project costs ¹	£160,000

Quality and Productivity: Proven Case Study

Cost of community services ²	£132,000
Total cost for project	£292,000
Saving from project over 2 years	£1,010,715
<p>1. Project costs include</p> <ul style="list-style-type: none"> • 2 WTE Band 7 nurses for 2 years. Three part-time nurses held these posts. • Equipment costing £200, which included scales and blood pressure machines. • Master's level training for staff, costing £2,200. <p>2. Community costs are for the home IV therapy service (HITS) team</p>	

Over the 2-year period, 1,200 visits (120 rounds of treatment) for administration of intravenous (IV) diuretics were also delivered in conjunction with the home IV therapy service (HITS) team in the East Cheshire community

Productivity in the system improved through using nurse-led care pathways, avoiding delays for hospital appointments. Patients were seen rapidly and had better access to services, closer to their homes. The services also led to improved identification of patients as well as early assessment and diagnosis.

Type of saving	Savings are a result of reduced length of stay in hospital (non-cash releasing) and avoided hospital admissions (cash releasing).
Any costs required to achieve the savings	<p>The recurring total cost to achieve the savings was £160,500 over 2 years. This equates to a saving of over £215,000 per 100,000 population over project life or £107,500 per 100,000 population per annum.</p> <p>The project lead and cardiology consultants provided pro bono support for the project throughout its 2-year lifespan. The evaluation of the project estimated this non-recurring pro bono contribution as £24,000 per annum, following BHF guidelines. Therefore the total cost of the support provided by the project lead and consultants is estimated to be £48,000 over the 2-year period.</p>
Programme budget	Problems of circulation, CVD.
Supporting evidence	No additional information provided.

Quality outcomes delivered

Impact on quality of care or population health

There were no reported complications to being treated outside a hospital by nurses and timely access to services translated to improved physical and psychological outcomes. As the BHF nurses completed Master's modules in clinical examination and diagnostics, and were trained to manage multiple cardiac conditions including atrial fibrillation and ischaemic heart disease, it was felt that this would safeguard against missing precipitating events that could trigger decompensated heart failure.

Education and training of healthcare professionals was also provided to improve patient safety and quality of care. A training programme on 'red flags' for cardiac conditions for district nurses and nursing home staff has been developed. A course on management of advanced HF in conjunction with East Cheshire Hospice is also delivered. Training sessions for GPs are provided on management of HF and atrial fibrillation when requested and services are committed to ongoing training, which will be crucial in improving management of patients in primary care.

Impact on patients, people who use services and/or population safety

Support for patients with HF and chest pain to self-manage in the community has been provided using a 'traffic light' patient tool and patient education sessions delivered through focus groups. Patients have been invited to play an active role in shaping services locally so they can address the quality and accessibility of care available.

It was reported (BHF 2015) that the more empowered the patients are, the more likely they are to self-manage and to actively seek advice by calling the team. The scale of shift to community management was described as substantial, with consultants remarking that they do not often see HF patients anymore.

Impact on patients, people who use services, carers, public and/or population experience

Previously cardiac patients admitted to hospital and referred to cardiology could wait up to a week to be reviewed. Now, they are identified and assessed the same day or the next day after admission with appropriate diagnoses and treatment plans. The cardiac nurse team also work collaboratively with the local HITS team to manage, prescribe and deliver IV diuretics to patients at home. This avoids hospital admissions and allows patients to remain at home, especially at the end of their life.

The benefits to patients for home-based and community interventions are that they:

- are more comfortable
- feel safer
- are more empowered.

Quality and Productivity: Proven Case Study

Families and carers wanted their loved one to stay at home where they were comfortable, and did not need to travel to the hospital, and said that having them at home or managed in the community helped family members feel more involved in their care.

Fifty patients who required a follow-up appointment were randomly selected from the nurse-led cardiology clinic to complete the [Advancing Quality Alliance](#) (AQuA) management assessment questionnaire and a modified version of the [patient activation measure](#) (PAM) questionnaire; 96% reported that their care was integrated and 52% reported that they had noticed improved health outcome. Most of these questionnaires would have been completed by patients being treated for heart failure, because they make up the vast majority of those requiring follow-up, but a specific breakdown is not available.

Supporting evidence

The integrated care programme as a whole reported achieving the following outcomes across various sites:

- improved identification, diagnosis and management of CVD patients;
- increased knowledge and training of healthcare professionals, encouraging a more holistic approach such as consideration of psychological and social care needs;
- new care and referral pathways implemented, with transfer of activity from acute to the community setting;
- improved patient quality of life and patient satisfaction;
- increased ability and confidence of patients to self-manage, and increased knowledge of, their condition;
- improved links across the local health economy between service providers;
- reduced unplanned hospital admissions and reported cost savings;
- care pathways and services adopted to help manage other long-term conditions such as diabetes and chronic obstructive pulmonary disease.

Evidence of effectiveness

Evidence base for case study

The initiative is informed by empirical evidence and published research evidence.

The NHS has set out a commitment to develop new models of care and a transformational way of working to allow the health and social care system to manage multiple comorbidities in an increasingly ageing population. The evaluation of the BHF Integrated Care programme (BHF 2015) has yielded results to support the integration of services to promote population health.

Evidence of

Evidence of deliverables has been published in the BHF (2015)

Quality and Productivity: Proven Case Study

deliverables from implementation	<p>evaluation report.</p> <p>Implementation of the projects has been sustained after the 2-year funded pilot period ended. The projects with nurse-led models of delivery have been successfully sustained at 5 of the project sites, including the East Cheshire project.</p>
Where implemented	<p>The initiative was implemented in the following 9 organisations across the UK:</p> <ul style="list-style-type: none">• England: NHS Bristol, East Cheshire NHS Trust, North Somerset CCG, Oxleas NHS Foundation Trust.• Wales: Abertawe Bro Morgannwg University Health Board, Betsi Cadwaladr University Health Board.• Scotland: NHS Fife, NHS Lanarkshire and NHS Tayside.
Degree to which the actual benefits matched assumptions	<p>The actual benefits matched what was expected.</p>
If initiative has been replicated how frequently/widely has it been replicated	<p>There have been enquiries about implementing the model from healthcare professionals and commissioners across the UK.</p> <p>Central and West London CCGs have replicated similar integrated community cardiology services and BHF guidelines are being drafted into the service specification. Hillingdon CCG has been successful in securing a business case for their HF community service based on the HF programme evidence. Evidence of replicability has also emerged from NHS Greater Glasgow and Clyde where the AF model from the BHF Lanarkshire site has been implemented.</p>
Supporting evidence	<p>No additional information provided.</p>

Details of implementation

Implementation details	<p>The project was funded from September 2012.</p> <p>Before this, in November 2011, East Cheshire had a Rapid Improvement project in cardiology in which all stakeholders (consultants, GPs, nurses, managers, primary care trusts) were involved. GPs said they wanted a point of contact for clinical discussion, comprehensive discharge planning, for primary care staff to receive further training to manage more patients, and services that were more responsive to patients' needs. Commissioners wanted to reduce admissions, readmissions and length of stay, and reduce duplication of care. Additionally the nurse specialist cardiology lead had been working with the North West Cardiac Network to develop a protocol for IV diuretics in the</p>
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community.

The service is based at Macclesfield District General Hospital, where a generic cardiology nurse-led service has been developed in order to allow admitted patients to be proactively identified, seen quickly and, when appropriate, discharged from hospital sooner. GPs can also refer directly into the service. The model involves nurses in clinical roles making initial diagnosis of common cardiac conditions using clinical guidelines, and treatment decisions, much like consultants would normally do. Key to this model is the generalist role of the cardiac nurses, which will eventually see them all trained in three of the main cardiology conditions: chest pain, atrial fibrillation (AF), and heart failure (HF). 'Generalist' in this sense refers to cardiac nurses training in multiple cardiac specialities to move out of 'specialism silos'

The trust relaunched the HITS team because of a need to reduce hospital stays and it was realised that the team could be utilised to deliver IV diuretics. There were delays in patients being assessed by cardiologists after admission, so the secondary care cardiology nurses undertook a pilot project of specialist nurse assessment and management following hospital admission. This was very successful but not sustainable with the resources available. Locally, the acute and community trusts merged, which led to the existing community HF team coming under the jurisdiction of secondary care.

The BHF funded 2 whole time equivalent band 7 nurses for 2 years. Three part-time nurses held these posts. The posts trained and supported the existing team so that it was less susceptible to sickness and leave, and cardiac patients could be managed seamlessly across primary and secondary care from admission to after discharge.

Staff recruitment started in April 2012 with the requirement that applicants had a cardiology background and provided evidence of ongoing professional development. Staff were given educational opportunities to develop clinical skills, diagnostic skills and advanced communication skills over the 2-year project.

New staff were supernumerary and fully supervised by senior staff for 3 months, but were allowed to develop according to their ability and confidence. Improvements to the patient journey and length of stay were noticeable within about 3 months.

The project has contributed to integrated care by providing a more holistic service across the hospital, and better supporting patients with comorbidities. Working closely with other teams in the hospital and in the community, the service helps to prevent admissions and to discharge

Quality and Productivity: Proven Case Study

patients from hospital sooner. The project fits well with the wider local context, where there is a particular interest in care coordination, care planning and risk stratification.

Any cardiac patients who cannot be managed within developed pathways are escalated to the consultant cardiologists for assessment. The cardiac nurses ensure that patients are given appropriate information before discharge. Patients considered to be at high risk of readmission or who require ongoing management are followed up by the cardiac nurses in community clinics or at home, and there is close liaison with other services to reduce duplication of care.

It is acknowledged that there was a subjective element to patient admission and discharge particularly during the first year of the project when patients were treated very cautiously due to perceived risks to patients and inexperience of managing these patients in the community. However as the project progressed and the cardiology team became more experienced at managing these patients in the community, the average duration of treatment reduced and our protocols for treatment were adjusted accordingly.

Time taken to implement

This initiative took between 3 months and 1 year to implement.

Ease of implementation

Organising change was easy due to work completed prior to the project, by the cardiac network, merging and reorganisation in the trust, availability of the HITS team, and the full support of consultant cardiologists.

Level of support and commitment

The East Cheshire project was supported by cardiologists, was in line with the trust's strategic direction and addressed an identified patient need. Without any one of these elements, the project might not have enjoyed the same level of success. The project's success also owes much to the dedicated team and project lead. Big investments have been made in training nurses for autonomous clinical roles in the community. In future, the project would benefit from extending to operate a 7-day service, because out of hours care remains a key gap.

Further information of deliverables for all the projects has been published in the BHF (2015) evaluation report.

Barriers to implementation

Initial opposition from other healthcare professionals, including consultants, GPs and nurses, has been largely overcome. There has been opposition from pharmacists in delivering IV furosemide because GPs would not take clinical responsibility for delivery of the IV fluids. In addition, community pharmacies would not provide the drugs because they had to pay a lot more for IV furosemide than the hospital pharmacy due to the smaller

Quality and Productivity: Proven Case Study

quantities involved. This barrier has been resolved as the process is being managed by the integrated cardiology nurse team. The team provide prescriptions which are dispensed by the hospital pharmacy. It was agreed that overall clinical responsibility would remain with the patients' own cardiology consultant where applicable or alternatively the heart failure consultant.

Risks

The main risk was providing a service that was successful and then not having it funded after the project. This was dealt with by continuous audit activity throughout the project and evaluation of predefined outcomes, admissions, readmissions and length of stay as well as patient satisfaction. The service is dependent on the HITS team for ongoing delivery of IV diuretics in the community, but as they have a different funding stream, there is no direct control over this.

Successful implementation requires an effective team leader and a team of specialist nurses who are willing to develop professionally, have clinical decision-making skills, communicate effectively with community teams, embrace change and are supported by cardiologists.

Supporting evidence

No additional information provided.

Further evidence

Dependencies

No additional information provided.

Contacts and resources

Contacts and resources

If you require any further information please email: qualityandproductivity@nice.org.uk and we will forward your enquiry and contact details to the provider of this case study. Please quote reference 15/0010 in your email.

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BHF (2015) [Integrated care pilots evaluation: final report](#). ICF, London

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