



British Heart
Foundation

INNOVATIVE SERVICES

Four evidence-based models for improving
cardiovascular care in your area of England

**FIGHT
FOR EVERY
HEARTBEAT**

bhf.org.uk

5.9 million
- the number of people living with
cardiovascular disease in England



WHY INNOVATE?

This quick guide shares findings from four evidence-based, independently evaluated models for improving cardiovascular disease care that you can commission for your population.

Today, the NHS faces unprecedented challenges – from financial pressures to the growing burden of multimorbid long-term conditions, of which cardiovascular disease (CVD) is often a factor.

Commissioning strategies must help local health system leaders meet financial targets by 2020 while maintaining quality and addressing variations in care. Long-term sustainability and financial efficiency must be considered, with a focus on patient experience, quality of care and alignment with workforce planning.

25% of over 60s in England report having two or more long-term conditions¹

The NHS in England must find **£22 billion** of savings by 2020²

There are an estimated **5.9 million** people living with cardiovascular disease in England³

Within this context, service innovation is vital.

The British Heart Foundation (BHF), the UK's leading charitable funder of CVD research, is always exploring new ways of delivering and supporting the best possible care for patients.

We want the most clinically effective, evidence-based and NICE-advocated approaches to improving CVD diagnosis and treatment to be deployed across the UK, and we are committed to working with local health economies to enable this to happen.

The BHF: driving evidence-based practice

We have expertise in implementing research into clinical practice, developing robust and independently evaluated impact evidence to enhance quality of care and developing the tools and resources to support the spread and adoption of best practice at scale. These support delivery of sustainable improvements to patient outcomes, service delivery and economic efficiency.

The plethora of existing innovations can make it difficult for healthcare leaders and commissioners to decide where investment should go. In response, our 'implementation into practice' programme transparently and independently evaluates innovations across the CVD pathway. These demonstrate return-on-investment potential and highlight early benefits within the operational planning cycle.

Our independent evaluations determine what works in practice and why healthcare system leaders can be confident they are implementing innovations of proven value already in use throughout the UK.

Find out more: bhf.org.uk/bestpractice

OUR BEST PRACTICE INNOVATIONS

This quick guide highlights four piloted innovations developed by the BHF and co-produced with NHS organisations. It describes how these pilots were run, the outcomes achieved and the lessons learned. It also lists core elements needed to transform services.

The BHF is committed to strengthening the evidence base for new models of care in CVD – that is why all our interventions demonstrate how NICE guidance can be implemented in practice. We plan to develop an extensive menu of evaluated solutions. This guide presents the first of these, covering service models from early diagnosis to improved management and care of CVD.

Atrial Fibrillation (AF)

1. Arrhythmia Care Coordinators

Familial Hypercholesterolaemia (FH)

2. Cascade testing for FH

Heart Failure

3. Integrated heart failure management in the community
4. Home administration of intravenous diuretics to heart failure patients

Programmes in the pipeline:

- Implementation of the 'House of Care' model to support long-term condition (LTC) management
- Blood pressure detection and management
- Inherited cardiac conditions

Look out for these key themes and benefits



Personalised care



Reduced hospital admissions



Safe care



Improved detection



Long-term conditions care



Improved patient experience



Cost effectiveness



Improved productivity



Cost savings



Reduced bed days

1. _____

ATRIAL FIBRILLATION

THE CHALLENGE



1.4m

– the number of people in England with atrial fibrillation (AF), the most common cardiac arrhythmia^{4,5}



AF cases, and stroke-related hospital admissions, are predicted to **rise as the population ages**⁷



422,600

– the number of people in England whose AF is undiagnosed⁵



£8.9 billion

– the health and social care expenditure and wider economic costs of AF in the UK per year⁸



5x

– the increased risk of stroke among people with AF⁶



14,220

– estimated number of avoidable strokes in England over three years if everyone with AF were diagnosed and received appropriate anticoagulation therapy⁹



AF-related strokes

are more likely to be fatal or cause severe disability than non-AF related strokes⁶



1 in 5

– the proportion of patients with diagnosed AF in England who don't receive appropriate therapy⁴



1 in 200

people aged 50–59 have AF, increasing to almost 1 in 10 people aged over 80⁷

THE SOLUTION

Arrhythmia Care Coordinators

Themes:



What did the pilot do?

Arrhythmia Care Coordinators (ACCs) provided a single point of contact for patients, coordinating care and performing diagnostic tests, clinical interventions and follow-up outpatient clinics.

ACCs increased awareness and identification of AF through a local audit and the use of validated tools.

What were the benefits?

- ACCs helped to ensure timely access to appropriate services and supported medicines optimisation
- 1,680 patients experienced 844 fewer readmissions in one year as a result of ACC interventions
- Better patient and carer understanding of the condition and more time spent on patient and carer education
- Significant improvement in patient and carer quality of care
- Enhanced clinical effectiveness, patient and carer experience and cost effectiveness, demonstrated by an independent evaluation
- Multidisciplinary clinics brought geneticists, cardiologists and nurses together to provide rapid-access clinics and maximise operational efficiency
- Appointment of ACCs is an effective way of raising awareness of AF across the system, enhancing detection,

case finding and optimal management of AF and improving efficiency and productivity at pilot sites.

What were the savings?

- Within one year of the pilot, 23.5 ACC roles saved £2,216,344 in costs related to reduced hospital readmissions. Taking into account ACC staff costs, this was a net saving of £689,888 across the 19 NHS sites¹⁰.

£14 million

- estimated potential net savings over two years from scaling up the Bristol pilot site model across England¹¹

What are the benefits of adopting at scale?

- An effective model to more efficiently enhance detection and management of AF and reduce stroke prevalence
- Provides economies of scale across GP federations and Sustainability and Transformation Partnerships' (STPs) footprints.

Next steps

Learn more about commissioning this intervention at bhf.org.uk/acc



Key facts

Dates run: 2006-09

Number of pilot sites: 19

Health services involved: NHS trusts

260,000

**– approximate number of people
affected by FH in the UK**



2.

FAMILIAL HYPERCHOLESTEROLAEMIA

THE CHALLENGE



Familial Hypercholesterolaemia (FH) is caused by a genetic defect, resulting in abnormally high total and LDL cholesterol levels in the blood



30%

– the risk of women with FH developing CHD by age 60¹³



50%

– the risk of siblings and children of a person with FH sharing the genetic defect¹²



Early detection and treatment with lipid-lowering drugs can increase life expectancy to near normal¹⁴



50%

– the risk of men with FH developing coronary heart disease (CHD) by age 50¹³



1 in 250

– estimated FH incidence in the UK, with around 260,000 people affected¹⁵

THE SOLUTION

Cascade testing for FH

Themes:       

What did the pilot do?

A cascade testing service aiming to identify and treat first-degree relatives of people with FH was piloted in England and Scotland following a successful scheme in Wales¹⁶. Specialist FH nurses co-ordinated new service models, including primary or secondary care-led models and more nuanced dual-care models.

- Cascade testing of first-degree relatives of those with suspected FH is highly cost effective. High levels of undetected FH in the UK and associated morbidity and mortality mean that adopting cascade testing should yield substantial quality-of-life and survival gains in addition to reducing costs from avoidable CHD treatment.

What were the benefits?

- 1,373 previously undiagnosed FH cases detected by the 12 English and Scottish pilot sites by July 2017
- Improved quality of outcomes for people with FH through optimal therapy to reduce risk of CHD
- Significant improvement in patient and carer quality of care reported
- Psychological benefits from confirmation of absence of disease for patients who may have lost multiple family members to undiagnosed FH
- Improved awareness of FH among healthcare professionals, meaning they are better equipped to recognise potential cases and refer in a timely manner for further assessment and, if appropriate, genetic testing.

What were the savings?

- Estimated Incremental Cost Effectiveness Ratio (ICER) per relative tested was £5,806, far below the NICE threshold of £20,000–£30,000¹⁸

£380 million

- amount the UK could save from avoided CHD events by diagnosing and treating all relatives of FH index cases¹⁷

What are the benefits of adopting at scale?

- This approach provides the evidence to develop a fully functioning FH cascade testing service across Clinical Commissioning Groups (CCGs) and STP geographies, bringing together primary and specialist secondary care services to more effectively and efficiently identify and treat undiagnosed FH and reduce premature heart attacks and deaths.

Next steps

Learn more about commissioning this intervention at bhf.org.uk/fhservice



Key facts

Dates run: 2010–ongoing

Number of pilot sites: 12 across England and Scotland

Health services involved: NHS Trusts (in England) and Health Boards (in Scotland)

77% 

- reduction in costs when heart failure specialist nurses deliver community-based intravenous diuretic services

3.

HEART FAILURE

THE CHALLENGE



435,000

people in England are living with heart failure¹⁵



Heart failure admissions are predicted to continue to **rise as the population ages**



1 million

- bed days attributable to heart failure in the UK each year¹⁹



50%

- the share of hospital admissions for heart failure in England and Wales in 2014/15 associated with moderate or severe oedema²⁰



57,000

- the number of emergency hospital admissions in England and Wales caused by heart failure in 2014/15, the most common cause of admission in people aged over 65²⁰

THE SOLUTION

Integrated heart failure management in the community

Themes:        

What did the pilots do?

An early BHF pilot demonstrated a significant role for Heart Failure Specialist Nurses (HFSNs) in enhancing outcomes for patients and reducing hospital admissions. This work, across 26 NHS sites, showed these roles are key to developing and delivering more integrated heart failure pathways of care.

In other BHF-funded programmes, 10 sites implemented community intravenous diuretics (IVD) services and six sites established new heart failure models of care to create an integrated approach to heart failure management.

What were the benefits?

- Fewer complications for patients receiving home-based treatment compared with those in hospital, according to a small-scale inpatient comparative study
- Patients seen by an HFSN reported significant increases in quality of life over a one-year follow-up period
- Better patient and carer knowledge reported because more time was spent on education
- Significant improvement in patient and carer experiences reported
- New integrated heart failure teams delivered innovative approaches to heart failure management through hospital

in-reach, anticipatory care planning, one-stop heart failure clinics and intravenous therapy in the community

- Pilots demonstrated clinical effectiveness, enhanced patient safety and carer experience and improved cost effectiveness. These are evidence of an effective model for establishing integrated heart failure teams in the community.

What were the savings?

- A 35% reduction in hospital admissions, with an estimated £169,000 saved per 1,000 patients, as a result of access to HFSNs across the 26 sites²¹

£136 million

- estimated potential net savings over two years from scaling up the East Cheshire pilot site model across England¹¹

What are the benefits of adopting at scale?

- These approaches provide scalable solutions for CCGs and leads in STPs to establish integrated, multidisciplinary teams across primary and secondary care to manage heart failure as an LTC. These aim to enhance patient outcomes and improve efficiency.

Next steps

Learn more about commissioning this intervention at bhf.org.uk/heartfailure



Key facts

Dates run: 2004-07, 2010-14

Number of pilot sites: 42

Health services involved: NHS Trusts, Primary Care Trusts and CCGs (in England) and Health Boards (in Scotland and Wales)

THE SOLUTION

Home administration of intravenous diuretics to heart failure patients

Themes:       

What did the pilot do?

HFSNs developed and delivered community-based IVD services at home, in hospices or as day care in hospital rather than as an inpatient, with the associated costs as part of existing services.

What were the benefits?

- 1,040 bed days were saved across the 10 pilot sites²²
- Fewer complications for patients receiving home-based treatment compared with those in hospital, according to a small-scale inpatient comparative study
- Better patient and carer knowledge was reported because more time was spent on patient and carer education
- Significant improvement in patient and carer experiences was reported
- 79% of interventions did not involve hospital admission, preventing 869 hospital bed days over the pilot duration²²
- The evaluation demonstrated clinical effectiveness, safety, enhanced patient and carer experience and cost effectiveness, and is an effective way of delivering home-based IVD²³

What were the savings?

- A 77% reduction in costs for 80 successful interventions (defined as nurses administering diuretics through cannulation)²²
- The approximate cost of delivery was £793 per intervention, compared with £3,796 in hospital, with net savings of £162,740 across the 10 pilot sites²².

77%

reduction in costs when interventions were made

What are the benefits of adopting at scale?

- This approach provides scalable solutions for CCGs and leads in STPs to reduce hospital admissions for heart failure, and an opportunity to integrate community multidisciplinary teams (MDTs) across primary and secondary care to enhance patient outcomes and improve efficiency.

Next steps

Learn more about commissioning this intervention at bhf.org.uk/communityIVD



Key facts

Dates run: 2010-14

Number of pilot sites: 10

Health services involved: NHS Trusts and CCGs (in England) and Health Boards (in Scotland and Wales)

LESSONS FROM THE PILOTS

1. Develop strong leadership

Clinical leadership needs to be strong, inspirational and inclusive, and address current and emerging workforce planning issues

It is critical to secure the commitment of senior clinical staff to act as project 'champions' for new service innovations – to get peers on board and proactively engage with related clinical leads in other, interdependent parts of the system. There needs to be meaningful engagement with a variety of operational and strategic partners.

Successfully implementing new service innovations depends on:

- Leadership
- Integrated working
- Relationships and timing.

By providing the vision and guidance to encourage others to act, strategic leadership can be the catalyst to deliver new service innovations. Involving from project inception those senior staff with responsibility for planning and commissioning services is a significant enabler for continued 'buy-in' across the system. This will support the longer-term sustainability of a successful new innovation.

2. Create efficient, integrated services

Integrating services can boost efficiency and improve patient outcomes

In addition to upskilling established staff to grow clinical skills, considerable synergies may be gained from considering the following:

- MDTs can work together to assess CVD and its comorbidities in single assessment visits
- Training and engagement across different specialties and MDTs can enhance clinical learning and minimise capacity risks
- Nurse prescribers working in teams with non-prescribers can greatly enhance efficiencies
- Systematically use validated patient self-management tools
- Collaborating with other services such as district nursing, rapid-response and local out-of-hours services can minimise exacerbations and reduce avoidable admissions.

A menu of services may combine different delivery methods, such as IV and subcutaneous diuretics, and/or different treatment locations such as day case and ambulatory care units. Workload may be more predictable and higher patient numbers offer the scope for bigger savings.

More systematic service integration – such as the merger of community heart failure nurse services with cardiac rehabilitation (and in some cases palliative care) teams – can be successfully deployed to form new multidisciplinary primary cardiac care teams. This provides the opportunity to include such elements as home-based IVD services as part of a new service specification. In addition, merging teams is also giving scope to extend service delivery to new locations, such as care homes.

3. Build positive relationships

Invest in nurturing new relationships and acknowledge that integration takes time

Successful integration is often dependent on building positive relationships across the healthcare system; these take time to develop. A substantial amount of time is also required to set up projects – delays or changes in staffing often present challenges. Our projects only really began to mature after an initial set-up period of typically at least six months. Addressing infrastructure issues early was critical.

These issues included:

- Raising awareness of the new service or service changes
- Upskilling staff and training in new competencies
- Defining and gaining agreement on protocols (which can be accelerated if an addendum to an existing nursing or therapy protocol is considered)
- Estate management – redefining new and appropriate settings for new models of healthcare delivery
- Taking into account that some drugs and therapeutics and governance committees only meet every two to three months: this needs to be built into the timetable for new service launches.

“Projects only really began to mature after an initial set-up period of typically at least six months.”

HOW THE BHF CAN HELP YOU

In collaboration with NHS partners, we aim to help drive equitable access across England to evidence-based, cost-effective CVD services that demonstrably improve patient outcomes.

To make this happen, the BHF employs highly skilled change agents, with either clinical or management backgrounds in the NHS. They collaborate with system leaders at national and local levels to help them make the case for change and to implement innovations in CVD detection, diagnosis, management and care.

These change agents – the BHF Health Services Engagement team – are there to listen to health leaders. They understand the context and environment and act as catalysts for implementation of proven best practice evidence that supports system change. They do this by engaging, educating and empowering health system leaders so that innovations can be tailored to local and regional circumstances.

Through our engagement across the health system, the BHF is well positioned to help partners meet current and future challenges.



NEXT STEPS: OUR BEST PRACTICE PORTFOLIO

bhf.org.uk/bestpractice

Our best practice portfolio is an expanding range of innovative online and print resources and tools that summarise the externally evaluated evidence of our service innovation and integrated care pilots.

The aims of our external programme evaluations are to:

- Evaluate the clinical efficacy, safety, cost efficiency and patient experience of new models of care
- Create and build the evidence base and recommendations for service redesign for those planning, commissioning and providing clinical services
- Improve patient outcomes and address unwarranted variation in access to optimal CVD care
- Demonstrate more efficient use of healthcare resources.

Our evaluations use validated quantitative and qualitative methods across the programme cycle and include:

- Rationale for the intervention(s)
- Workforce planning and infrastructure requirements
- Implementation
- Outcomes achieved
- Challenges identified and mitigated
- Lessons learned
- Recommendations for future efforts to replicate new service interventions across the NHS

1 million
– bed days attributable to heart failure in the UK each year

REFERENCES

- ¹Department of Health. (2012) Long Term Conditions Compendium of Information. 3rd edition
- ²NHS Five Year Forward View Recap briefing for the Health Select Committee on technical modelling and scenarios england.nhs.uk/wp-content/uploads/2016/05/fyfv-tech-note-090516.pdf
- ³BHF (2017) estimate based on GP patient data and latest UK health surveys with CVD fieldwork
- ⁴NHS Digital (2016) Quality & Outcomes Framework 2015/16
- ⁵Public Health England (2015) Atrial Fibrillation prevalence estimates for local populations. Updated with 2015/16 population
- ⁶Marini C, De Santis F, Sacco S et al. Contribution of atrial fibrillation to incidence and outcome of ischemic stroke: results from a population-based study. *Stroke* 2005;36:1115-19
- ⁷One year on: Why are patients still having unnecessary AF-related strokes? ABPI, Stroke in Atrial Fibrillation Initiative (SAFI) abpi.org.uk/our-work/library/medical-disease/Pages/SAFI-One-Year-On.aspx
- ⁸AHSN Atlas of Solutions in Healthcare atlas.ahsnnetwork.com/atrial-fibrillation-data-landscape-tool-aims-to-reduce-af-related-strokes-by-365-a-year
- ⁹Public Health England analysis 2017
- ¹⁰Evaluation of the BHF Arrhythmia Care Coordinator Awards Ismail and Lewin University of York 2010
- ¹¹BHF innovation in practice examples (2015)
- ¹²NICE: Familial Hypercholesterolaemia Quality Standard (QS41) 2013
- ¹³NICE: Familial Hypercholesterolaemia: identification and management (CG 71) 2008
- ¹⁴Versmissen J, Oosterveer DM et al. Efficacy of statins in familial hypercholesterolaemia: a long term cohort study. *BMJ*,2008:337
- ¹⁵BHF (2017) CVD Statistics Factsheet and BHF analysis
- ¹⁶Delivery of Familial Hypercholesterolaemia Services: Identifying Enablers and Barriers. British Heart Foundation 2016
- ¹⁷Heart UK. Saving lives, saving families. The health, social and economic advantages of detecting and treating familial hypercholesterolaemia (FH). 2013
- ¹⁸NHS England Briefing: Familial hypercholesterolaemia in England 2013
- ¹⁹National Institute for Health and Care Excellence (2010) chronic heart failure: Management of chronic heart failure in adults in primary and secondary care. NICE clinical guideline 108. nice.org.uk/guidance/cg108
- ²⁰National Heart Failure Audit 2014/15 ucl.ac.uk/nicor/audits/heartfailure/reports
- ²¹The Development and Impact of the British Heart Foundation and Big Lottery Fund Heart Failure Specialist Nurse Services in England. University of York 2008
- ²²Brightpurpose. Evaluation of IV Diuretics Pilot for British Heart Foundation. Final Report. June 2014
- ²³NICE: Home administration of intravenous diuretics to heart failure patients: Increasing productivity and improving quality of care. Quality and Productivity Proven Case Study 2013



**British Heart
Foundation**

For over 50 years our research has saved lives.

We've broken new ground, revolutionised treatments and transformed care.

But heart and circulatory disease still kills one in four people in the UK.

That's why we need you.

With your support, your time, your donations, our research will beat heart disease for good.

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