This issue reports highlights from the British Society for Heart Failure (BSH) 12th Annual Autumn Meeting, held at the Queen Elizabeth II Conference Centre, Westminster, London on 26–27 November 2009. The meeting was presented as a ‘step-by-step guide to care of a complex syndrome’.

Heart failure care in the UK today

Over the past few years, heart failure prognosis has been steadily improving in areas where there is good specialist care, but national data paint a more disappointing picture.

The latest heart failure audit data for England and Wales show one-year mortality to be 30%. This is strongly related to age: mortality is 6% in patients aged under 45 years, increasing to 48% in patients aged over 85 years.

Reporting the audit data, Theresa McDonagh (London) said that mortality is affected by place of care: one-year mortality is 22% in patients admitted to a cardiology ward and 56% in those admitted to a general medical ward. Patients admitted to a cardiology ward tend to be younger and male. However, when the data are adjusted for demographics, symptoms, history and treatment, being admitted to a general medical ward is still associated with a 20% increase in mortality compared with treatment on a cardiology ward.

Of patients who survive a first admission, 17.5% have a readmission within the year.

The audit data show inhospital mortality to be 10.5%. This is much higher than in European and US surveys, but lower than in the Healthcare Commission 2005 acute heart failure survey (15%). This could reflect the fact that the early audit data come from heart failure ‘enthusiasts’, and that mortality is lower in these specialist hands. “I suspect that as we get more data, the figure will be similar to the Healthcare Commission data,” Dr McDonagh commented.

Henry Dargie (Glasgow) reported that preliminary audit data from Scotland, on 1233 episodes from all 31 acute sites, show inhospital mortality to be 17.5%.

On the positive side, the data for England and Wales show that access to investigations in secondary care and the prescription of beta-blockers on discharge are higher than in the 2005 Healthcare Commission survey. The audit data (for April 08–March 09), which relate to 6170 hospital admissions, can be accessed from the BSH website (www.bsh.org.uk).

Outlining the state of play in primary care, Ahmet Fuat (Darlington) said that use of beta-blockers is one of the current challenges in heart failure management.

Prescription of a beta-blocker (in addition to an angiotensin-converting enzyme [ACE] inhibitor/angiotensin receptor blocker) is now included in the GPs’ Quality and Outcomes Framework (QOF). There are no data yet on the extent to which the QOF target is being met, but studies have shown that beta-blocker use in primary care remains low. Dr Fuat said: “We need to get over perceived problems with these drugs. They should be considered for more patients, including patients with chronic obstructive pulmonary disease and peripheral vascular disease.”
Primary care prescribing of ACE inhibitors/angiotensin receptor blockers is generally high. However, there is evidence that few patients are titrated to target doses. Dr Fuat said that GPs and elderly-care physicians are well aware that for many frail elderly women it is difficult to get to high doses with these drugs, but attempts should be made.

Discussing advanced heart failure care, Simon Williams (Manchester) emphasised the importance of optimising medical therapy before referring patients for more complex treatments. He also highlighted the low use of device therapy (cardiac resynchronisation therapy [CRT] and implantable cardioverter defibrillators [ICDs]) in the UK relative to other Western European countries. Use of these devices has increased in the UK over the past two to three years. However, ICD use is still half that in Western Europe. For CRT, the UK is on track to meet the target of parity with European implant rates by 2016.

Implant rates are limited by current National Institute for Health and Clinical Excellence (NICE) indications, but Dr Williams said that several centres no longer carry out echocardiographic assessment of dysynchrony when selecting patients for CRT. At Wythenshawe, US guidelines are followed, and any patient with a QRS duration >120 msec on an ECG is generally put forward for CRT.

In a further presentation setting the scene, Annie MacCallum (Gloucestershire) said that heart failure specialist nurses (HFSNs) have come a long way from the days of beta-blocker titration clinics. In 2009, specialist nurses provide support in all aspects of the patient pathway, working in primary care trusts, acute hospitals and tertiary centres. There are many different models of care and HFSNs are equipped to manage a more complex caseload of patients.

Some centres are now starting to use telemonitoring and Ms MacCallum encouraged colleagues to get involved where possible: “It is time to be ambitious. This is the way forward for us to provide care to a greater number of patients in different care settings in a safe way.” She emphasised the need for HFSNs to audit their activity.

**Improving heart failure care**

Having set the scene, the next session looked at developments in heart failure care.

In pharmacotherapy, John McMurray (Glasgow) highlighted three recent trials of interest:

- **HEAAL** compared two doses of losartan (50 mg and 150 mg daily) in well-treated patients with symptomatic heart failure and reduced ejection fraction. The primary endpoint (all-cause death or heart failure hospitalisation) was significantly lower with the higher dose, with no significant increase in adverse events, reinforcing the message that doses of renin–angiotensin system blockers should be uptitrated in heart failure patients.

- The **PROTECT** trial (not yet published), the first major outcome study with an adenosine receptor antagonist (rolofylline), had disappointing results. It involved patients with acute heart failure and impaired renal function. Despite promising results from phase II studies, in PROTECT there was no difference between treatment and placebo groups, and there was a risk of seizure with active treatment.

- **FAIR-HF** assessed intravenous iron replacement in heart failure patients who were iron-deficient, with or without anaemia. Treatment was associated with improvements in symptoms and quality of life. But it was a small study, and Professor McMurray said that further investigation is needed to see whether the results can be replicated and translate into an improvement in clinical outcomes.

The conference also heard updates on the use of biomarkers for diagnosis, electrical therapy, ventricular assist devices (VADs) and transcatheter heart valves.

The recent Health Technology Assessment (HTA) on the use of B-type natriuretic peptides (NPs) in primary care should be a lever to improve NP availability for diagnosis. The HTA endorses the role of NPs in diagnosis but notes that the following patients should go straight to echocardiography: those with previous MI or basal crepitations, and males with ankle oedema. There are many new biomarkers but none is yet challenging the B-type NPs.

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*A list of study acronyms can be found on page 7*
“Time to reorganise service delivery”

Setting up acute heart failure units could be an important way of raising the standard of care, said Henry Dargie (Glasgow).

Giving the inaugural Philip Poole-Wilson Memorial Lecture, Professor Dargie said that clinical trials have shown a 50% absolute reduction in heart failure mortality with modern drugs and device treatment. This shows what can be achieved. But in clinical trials patients are managed by specialists. The latest audit data, showing that mortality from heart failure remains high, indicate that clinical practice needs to improve.

Heart failure care should move towards myocardial infarction (MI) status, Professor Dargie suggested, emphasising that coronary care units underlie the improved treatment of MI. The reorganisation of stroke care within specialist stroke units has also been a success.

The reorganisation of heart failure service delivery could provide:

- designated areas (heart failure units) with specialist staff
- a multidisciplinary approach
- a standard protocol and critical pathway (with rapid and appropriate access to diagnostic tests)
- regular multidisciplinary meetings
- continuous education.

The case for heart failure units is overwhelming, Professor Dargie said. The presentation of acute heart failure can differ widely, and the condition will be more easily identified and treated in a specialist setting. “It is not enough to say that a patient has heart failure. We have to know what is causing it. This is not a simple issue, which is why specialist care is very important,” he commented.

Better organisation of care is needed to put into clinical practice the treatments that are available. This could be achieved easily in the context of an acute heart failure unit, which could take patients from hospital clinics, acute admission units and primary care, and also MI patients with acute heart failure from coronary care units.

A heart failure unit would also make it easier to identify patients who could benefit from advanced therapies. At present, devices are used much less than NICE recommends and the transplantation rate is lower than internationally; in part, this is likely to be because patients who would benefit are not being identified.

Professor Dargie made the point that the reduction in mortality following the move to primary percutaneous coronary intervention was considerably less than the reduction in mortality that could be obtained by better use of available heart failure therapies. He suggested that the BSH could encourage a feasibility study of heart failure units. This study would probably not need to be very large to demonstrate a benefit in mortality/readmission rates.

CRT devices have, to date, been used in patients with New York Heart Association (NYHA) class III or IV heart failure, but there is increasing evidence of benefit in patients with less symptomatic heart failure. For example, MADIT-CRT compared CRT plus a defibrillator (CRT-D) and ICD use in patients with asymptomatic or mildly symptomatic heart failure. Survival free of heart failure (the primary endpoint) was significantly better in the CRT-D group. Subgroup analysis showed that this benefit was apparent only in patients with QRS duration ≥150 msec. The REVERSE extension study has also shown positive effects from CRT in NYHA class I and II heart failure.

With ICDs, the challenge remains to appropriately identify patients who are likely to benefit. This is important because only around 10% of primary prevention patients receive life-saving therapy from their ICD and there can be problems with the therapy.

VAD technology has advanced, with smaller more durable devices that are easier to implant. Clinical results are improving and in the HeartMate II destination therapy trial in patients with refractory heart failure (reported at the recent American Heart Association conference) two-year survival was 58%, considerably better than can be expected with optimal medical
therapy. However, there is a significant risk of VAD complications, particularly during long-term support, and this is not yet mainstream therapy. There is currently no NHS funding for VAD use as permanent destination therapy.

A significant proportion of heart failure is associated with valvular heart disease: valve disorders can lead to heart failure and can also develop as a consequence of heart failure, resulting in further deterioration. However, many patients with severe aortic stenosis do not receive valve replacement because of advanced age, poor left ventricular function or comorbidities put them at risk from conventional open-heart surgery. This has led to an interest in the development of catheter-based approaches for valve replacement. Transcatheter techniques are also being used to treat mitral regurgitation where again, because of advanced age or other medical conditions, many heart failure patients are not candidates for surgical intervention.

Transcatheter valve treatment is rapidly evolving and will need to be tested in randomised controlled trials.

Managing unusual heart failure

Survival following the treatment of many cancers has improved dramatically in the past 20 years but there has been a ‘trade-off’ in terms of long-term toxicity.

Martin Denvir (Edinburgh) said that use of anthracycline anticancer drugs (e.g. doxorubicin and epirubicin) has led to substantial gains in survival, particularly in childhood haematological cancers, but these drugs are cardiotoxic. There are an estimated 20,000 survivors of childhood cancer in the UK.

“Many of these patients will be emerging with cardiac dysfunction,” Dr Denvir said, pointing out that around 2–5% of patients who have been treated with anthracyclines develop clinical heart failure over 5–10 years.

Anthracycline cardiotoxicity is related to cumulative drug dose and is exacerbated by radiotherapy.

Another cardiotoxic drug is trastuzumab, used in the treatment of breast cancer. This drug is a monoclonal antibody directed against HER2, a human epidermal growth factor receptor that is overexpressed in 25% of breast cancers but is also present in the heart. An estimated 1–4% of patients who receive this drug develop heart failure.

Trastuzumab cardiotoxicity is not dose dependent. NICE advises functional assessment every three months during treatment and suspension of treatment if the left ventricular ejection fraction drops by 10% or more from baseline and to below 50%.

Dr Denvir said that trastuzumab toxicity appears to be largely reversible, with a high chance of recovery within two to three months. Patients should be reassessed and, where possible, treatment restarted because of the substantial benefits of the drug.

Other points made by speakers in this session include:

- At least 50% of dilated cardiomyopathy is familial. Viral infection, alcohol use and pregnancy are important triggers on top of an underlying genetic predisposition. Some 25–30 disease-causing genes have been identified. Genetic screening of families could potentially identify early disease, but there is as yet no evidence that preclinical diagnosis and the initiation of early treatment will prevent disease development. Also, in most families, only 10–30% of those with the gene develop the disease.

- Amyloid is probably the main cause of restrictive cardiomyopathy (a rare form of cardiomyopathy) in the UK. If a diagnosis of amyloid is made, patients should be referred to a specialist centre for treatment. Echocardiography can help distinguish between restrictive cardiomyopathy and constrictive pericarditis, the main differential diagnosis.

- Viral infection is the most common cause of myocarditis, with HIV an increasing viral cause. Myocarditis can also be caused by drugs, such as antiepileptics and antipsychotics. Standard heart failure treatment is important; there is no real evidence yet for antiviral (e.g. interferon) or immunosuppressive (e.g. anti-tumour necrosis factor) treatment.

Don’t stop the beta-blocker

Lack of beta-blockade has been identified as one of the factors influencing prognosis in myocarditis. “I urge people not to stop beta-blockers when people present to hospital with heart failure. Certainly in myocarditis, it is important to give these drugs early,” said Simon Williams (Manchester).

Another reason for maintaining beta-blockers was given by Ahmet Fuat (Darlington). He said that the drugs are often stopped, for no apparent reason, when a patient is admitted to hospital with acute decompensated heart failure. A recent study found that clinical outcome was no different when treatment was continued or interrupted. However, when therapy was interrupted patients were less likely to be receiving chronic beta-blocker therapy at three months.
‘Difficult heart failure’

The topics covered in a session on ‘difficult heart failure’ ranged from the very common to the very specialised.

Hyponatraemia (sodium <135 mmol/L) causes general malaise and weakness, and is associated with a poor prognosis, said Andrew Clark (Hull). He emphasised that traditional treatments – low salt diet, fluid restriction and intensified diuresis – are ineffective and unpleasant for the patient. Promising new treatments include the vasopressin antagonists (vaptans). These drugs block the effect of vasopressin in the kidney and produce ‘aquaresis’ (the removal of water only).

There is also now some evidence that supplementing diuretics with intravenous hypertonic saline may be effective, although UK clinicians currently tend not to be enthusiastic about this approach. Ultrafiltration is another treatment that might be useful, he said.

Martin Cowie (London) noted that diuretic resistance (oedema despite adequate therapy) is common but there is little randomised controlled trial evidence for treatment. Causes include poor adherence to diuretic therapy, excess dietary sodium, drug interactions and chronic kidney disease. Chronic loop diuretic therapy can itself make the kidney more resistant to diuretics. Resistant fluid retention can also be a marker of deteriorating heart failure.

Oral non-steroidal anti-inflammatory drugs (NSAIDs) – available over the counter as well as on prescription – are frequent culprits, particularly in advanced heart failure, Professor Cowie said. He added that, in his experience, topical NSAIDs can also cause fluid retention.

The optimal treatment strategy for resistant fluid retention will differ from patient to patient and can involve increased dose or frequency of a loop diuretic (twice daily dosage can be useful), and intravenous rather than oral dosing. Continuous infusion is better than bolus injection and probably safer. Sequential nephron blockade with a loop diuretic plus thiazide can also be effective, but it is important to monitor blood pressure and creatinine. “Many of our patients take metolazone or bendroflumethiazide occasionally during the week to get extra diuretic effect,” Professor Cowie commented. Ultrafiltration is also likely to play an increasing role.

Pulmonary hypertension is present in 60% of patients with severe left ventricular systolic dysfunction and in up to 70% of those with isolated diastolic dysfunction, said John Wort (London). For now, he said, recommendations are to treat the underlying heart failure. The specific pulmonary vasodilator treatments recommended in pulmonary arterial hypertension – prostanoids, endothelin receptor antagonists and phosphodiesterase type 5 (PDE5) inhibitors – are not recommended because of a lack of robust trial data. But trials are under way and there is a suggestion that sildenafil may be more effective than the endothelin-1 antagonists.

Success in treating congenital heart disease is leading to a new challenge in adult patients. Lorna Swan (London) explained that heart failure is inevitable for many patients with adult congenital heart disease (ACHD) as a sequela of their paediatric surgery, particularly complex patients with a single or systemic right ventricle. In this setting, heart failure is a leading cause of premature death.

There is little evidence on the best management of heart failure in these patients. Most congenital cardiologists extrapolate from guidelines on acquired heart failure, but it is not certain whether traditional treatments will be equally effective in ACHD patients. Haemodynamic issues have to be considered and in some situations standard heart failure therapy could be detrimental.

Asked what a district general hospital should do if, say, a patient with a Fontan circulation presents with acute heart failure, Dr Swan suggested that a specialist centre should be immediately contacted for advice.

Managing comorbidities

Comorbidities are common in patients with heart failure and add to the complexity of treatment.

Anita Simonds (London) said that sleep-disordered breathing occurs in around 50% of patients with heart failure, compared with 4% of men and 2% of women in the general population. It occurs in all degrees of heart failure, often as a mix of obstructive and central sleep apnoea. The condition is important because it can have progressive cardiac impact; it can also have significant impact on patients’ quality of life.

Heart failure patients with moderate-to-severe obstructive sleep apnoea (OSA) benefit from nasal continuous positive airway pressure (CPAP) therapy, with improvements in cardiac function and quality of life. “CPAP is undeniably the treatment of choice for these patients and should be available to them,” Dr Simonds said. Symptom relief often occurs within a day or two.

The optimum treatment of patients with central sleep apnoea (CSA) is less clear, with conflicting data on whether CPAP is useful. A current European trial (SERVE-HF) is assessing a new concept of adaptive servo-ventilation for CSA. This ventilatory strategy may be better than CPAP for CSA as it captures the ventilation pattern of the patient and smooths it out.

In terms of identifying patients who might have sleep-disordered breathing, Dr Simonds said that picking up OSA is not too difficult: there may be partner complaints about snoring, witnessed apnoeas, nocturnal choking and daytime sleepiness. Sleepiness may not be such a feature for patients with CSA.
She suggested that cardiologists should have a low threshold for considering a sleep study in patients with this history, and for obese patients and those with atrial fibrillation (AF; 75% of whom may have sleep-disordered breathing), nocturnal angina, resistant hypertension or nocturnal dysrhythmias. It was also important to work out how best to link services between cardiology and respiratory/sleep teams.

Discussion also covered these other common comorbidities:

- **Rheumatoid arthritis** – the excess risk of heart failure among patients with rheumatoid arthritis is not explained simply by an increased frequency or effect of traditional cardiovascular risk factors. It appears to be an immune-mediated heart failure. Mortality after heart failure diagnosis is greater in patients who also have rheumatoid arthritis. Reducing the inflammatory burden with disease-modifying antirheumatic drugs can reduce the risk of hospitalisation for heart failure. The literature indicates that naproxen is the NSAID of choice for patients with heart failure.

- **Atrial fibrillation** – AF and heart failure often co-exist; they are mutually causative and each can adversely affect the other. Between 10% and 50% of patients with heart failure have AF. There is no clear benefit of rhythm over rate control for managing AF in heart failure patients. Pacemaker interrogation is important to avoid missing a diagnosis of AF in patients being treated with CRT or a conventional dual-chamber pacemaker.

- **Diabetes** – treating heart failure patients with type 2 diabetes can be a therapeutic challenge. There is some evidence that these patients have an accelerated progression of their heart failure. Glitazones are contraindicated in heart failure. The British Heart Foundation is currently funding small trials assessing the use of metformin and sulphonylureas in patients with heart failure.

The role of review and monitoring

Telemonitoring may be going to take over some of the functions of the traditional outpatient review, but properly planned clinic reviews are still invaluable for patients, said Andrew Clark (Hull). Particularly during the first year or so after diagnosis, a key part of the review is to assess patients’ drug therapy. ECG is also important at follow-up to look for AF and left bundle branch block (and a possible need for CRT), and blood tests are needed to assess renal function and the development of anaemia.

Routine outpatient follow-up also provides patients with a sense of security. “Being assessed by people who are enthusiastic about the management of chronic heart failure has a dramatic effect on patients’ quality of life,” he said.

Monitoring of treatment by measuring NP levels is not yet proven, said Ahmet Fuat (Darlington). There have been conflicting results from trials comparing traditional care with therapy titrated to a specific B-type NP level. Studies have been small with limited follow up and mainly focused on younger patients; results have been inconclusive. The authors of a recent meta-analysis of six trials (published and unpublished) reported that NP-guided therapy is associated with a reduction in all-cause mortality compared with usual care, but they also identified the need for a randomised trial adequately powered to assess mortality.

Dr Fuat noted that there is some evidence that the efficacy of NP monitoring is reduced in elderly patients; also, women were under-represented in the studies. So it is unclear how applicable the data are to routine practice. He did believe, however, that NP measurement would become useful for discharge planning and prognostication.

Jill Riley (London) said there is increasing evidence for the benefit of telemonitoring of patients’ clinical status, transferring physiological data from the patient in their home to the healthcare provider.

Telemonitoring could be a useful adjunct for chronic disease management, she suggested. However, there are still many challenges to the implementation of this new way of working. New skills are needed to establish trust and support through a remote relationship. Also, the exact model to use and parameters to measure are unclear. Telemonitoring will require the reorganisation of outpatient care, so that patients can be seen on demand rather than by fixed appointments. Another challenge is to work out how to handle the huge amount of data that is generated.

The same issue of potential data overload was highlighted by Rakesh Sharma (London) who discussed the remote monitoring...
of implanted cardiac devices. Modern pacemakers and devices can provide a large amount of data on a patient’s clinical status: this is potentially useful for detecting early decompensation, and also for identifying patients at increased cardiovascular risk.

As well as standard pacing information, devices can now measure intrathoracic impedance and haemodynamics. Trials with these systems are under way and it is not yet known how these features affect patient outcome.

Dr Sharma suggested that clinical risk models/algorithms are likely to be developed to identify patients who are in trouble and need to come to clinic for assessment.

How are nurses going to implement change? Hayley Pryse-Hawkins (London) said that care must be co-ordinated: there are numerous patient pathways linked to diseases and a way has to be found to bring these together. “What we don’t want is a patient who can do remote monitoring for their pacemaker and remote monitoring in their home for weight, etc, but who is coming up to clinic to see a diabetologist.”

She pointed out that the Newham Borough of London is planning a chronic disease management programme, with remote monitoring for 800 patients with diabetes, heart failure or chronic obstructive pulmonary disease. Non-specialist nurses are doing the day-to-day monitoring and will highlight issues to specialist nurses as appropriate.

Emerging role of imaging in a complex syndrome

These were among the points made by the speakers in a session on imaging:

- Important new echocardiography techniques in heart failure include 3D echocardiography, which gives information on both structure and function of the left ventricle, speckle tracking echocardiography to analyse myocardial mechanics (e.g. ventricular twist) and a contrast echocardiographic technique that can be used to track intracavity blood flow within the left ventricle. In a few years, these techniques may move from the research arena to everyday practice.

- In nuclear cardiology, the results of the ADMIRE-HF study are potentially exciting and suggest that $^{123}$Iodine-meta-iodobenzylguanidine (mIBG) scanning may help to identify patients who are most likely to benefit from ICDs, though a larger study is now required.

- Cardiac magnetic resonance (CMR) imaging can provide information complementary to that obtained with echocardiography in heart failure, and has additional benefits in the assessment of aetiology. It is particularly useful in assessing viability and for perfusion imaging. One caution relates to reports that gadolinium contrast, used in most cardiac scans, is associated with a very small risk of potentially fatal nephrogenic systemic fibrosis in patients with severe renal impairment. (It is too early to say whether the newer, more stable gadolinium compounds also carry this risk.)

- Pacemaker incompatibility is one disadvantage of CMR in heart failure patients: because of cost, the new magnetic resonance imaging (MRI)-compatible leads are not an option for all patients with implanted CRT/ICD devices.

- Cardiac positron emission tomography (PET) currently has limited clinical role in heart failure, but an important role in clinical research. It can provide unique quantitative data on myocardial blood flow. Also, new research data suggest that measuring cardiac beta-receptor density with PET might enable the prediction of long-term risk of heart failure in post-MI patients.
References


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BSH AGM

At the Annual General Meeting of the BSH, held on 27 November, Dr Theresa McDonagh (chair) reported that membership continued to increase, and currently stood at 732. The majority of members were cardiologists and nurses, but several other groups were represented, including clinical researchers, geriatricians, GPs and pharmacists.

Observers to the BSH Board for 2009–11 were announced: John Baxter, Derek Connelly, Bernie Downey, Ahmet Fuat, Jim Moore and John Sanderson. These individuals had been chosen to represent specialties not covered by the elected members.

Dr McDonagh noted that although the British Cardiovascular Society Annual Conference & Exhibition in June 2009 had coincided with Heart Failure 2009, the BSH had still been involved in four sessions at the BCS conference. There was no similar clash of dates in 2010.

The first BSH meeting for trainees, held in April, had positive feedback and the meeting would be repeated in 2010.

In 2008/9, the BSH collaborated with many other professional organisations, including the European Society of Cardiology, the Healthcare Commission and the Primary Care Cardiovascular Society, and also with patient groups. The Society was also involved with the updating of the NICE chronic heart failure guidelines.

Dr McDonagh reported that the National Heart Failure Audit was progressing well and meaningful data were now being obtained.

The BSH accounts for the year to 31 May 2009 were presented by the Treasurer (Professor Iain Squire) who reported that the finances were in a healthy state.

12th BSH Annual Autumn Meeting: acknowledgements

Gold exhibitor
GE Healthcare

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Boston Scientific, Information Centre for Health and Social Care, Medtronic, NHS Improvement, Pfizer, Philips Healthcare, ResMed (UK), Roche Diagnostics, Servier Laboratories, Solvay Healthcare, Takeda UK and Vifor Pharma

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Becoming a Member or a Friend of the BSH

Membership is open to anyone involved in the diagnosis, management or science of heart failure. If you are interested in becoming a Member or Friend of the BSH, please contact:

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