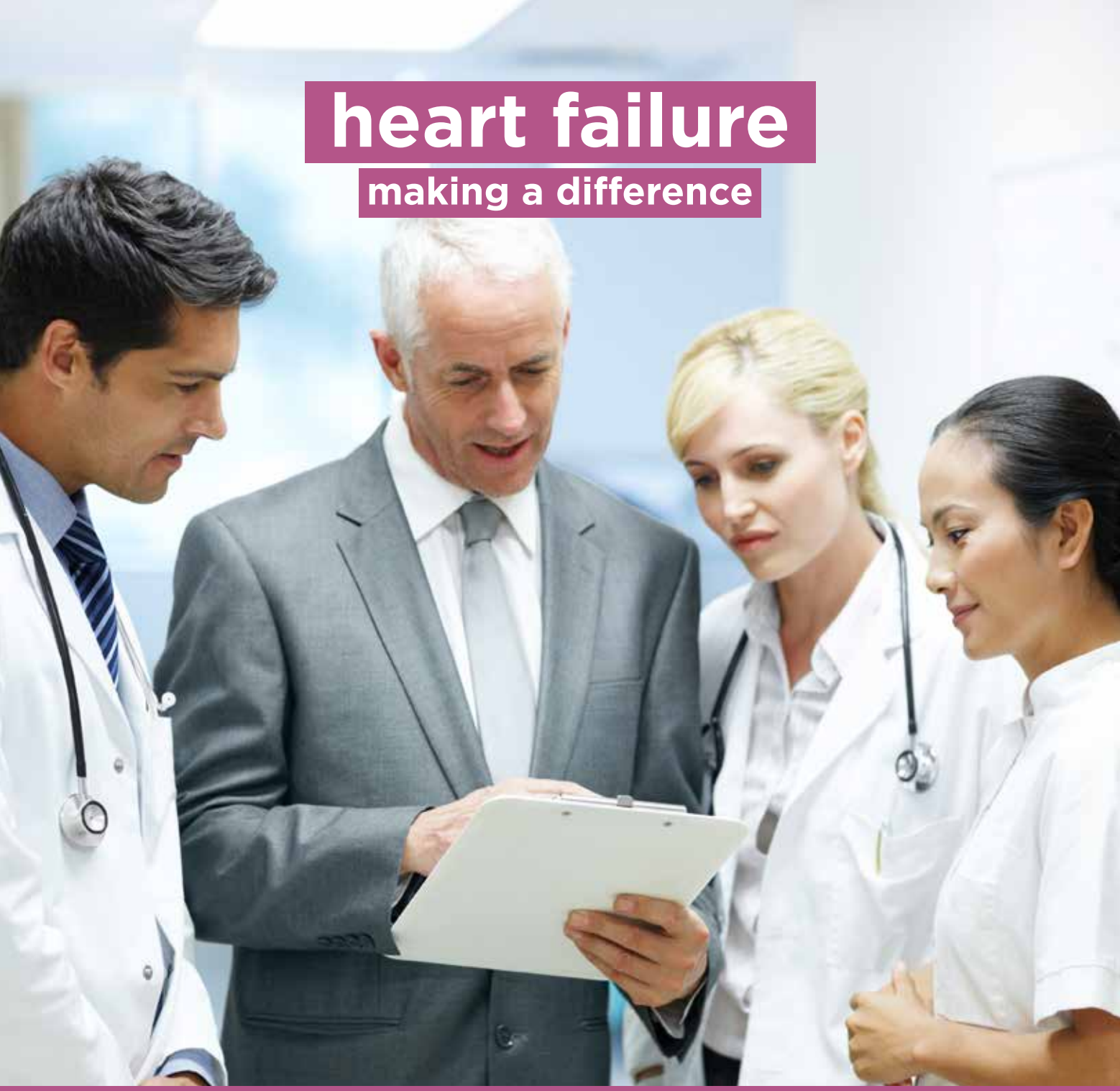
heart failure

making a difference



What would you like to change in heart failure in your practice in the next 12 months, and how can you make that happen?

At **Heart Failure 2017: making a difference**, over 300 heart failure specialist staff heard about recent initiatives to improve patient care and which organisations to lobby for better services and more funding. Through a series of challenging case studies, they also considered how to put latest guidelines and clinical data into practice, and how best to respond to some of today's controversies in heart failure.

DR PAUL KALRA

National objectives: what are we trying to achieve?

Improving the quality of care for patients with heart failure (HF) – with specialist input at every stage – is key to optimising prognosis for what is clearly a complex condition.

In his opening presentation of the meeting, Dr Paul Kalra, Consultant Cardiologist at Portsmouth NHS Trust and Chair-Elect of the British Society for Heart Failure (BSH) pointed out that, despite the reduction in one-year mortality for patients with severe HF from approximately 60% in the mid 1980s to less than 10% in today's clinical trials, there is still much to be done.

Drawing attention to the 10 recommendations of the All-Party Parliamentary Group on Heart Disease report, *Focus on Heart Failure*[1], Dr Kalra highlighted the importance of enhanced awareness of HF (at all levels, from public to government), timely diagnosis, tailored treatment, and boundary-free, multidisciplinary provision of care.

He demonstrated the impact in Portsmouth of implementing NICE's recommended two and six-week HF referral pathways for patients with raised levels of NTproBNP (> 2000pg/ml and 400-2000pg/ml respectively[2])(Figure 1).

"We introduced the service about four years ago and it required a lot of work in terms of shifting our clinical commitments. We have one to two heart failure clinics per week and we are now seeing 99.5% of patients within the two and six-week limits,' said Dr Kalra.

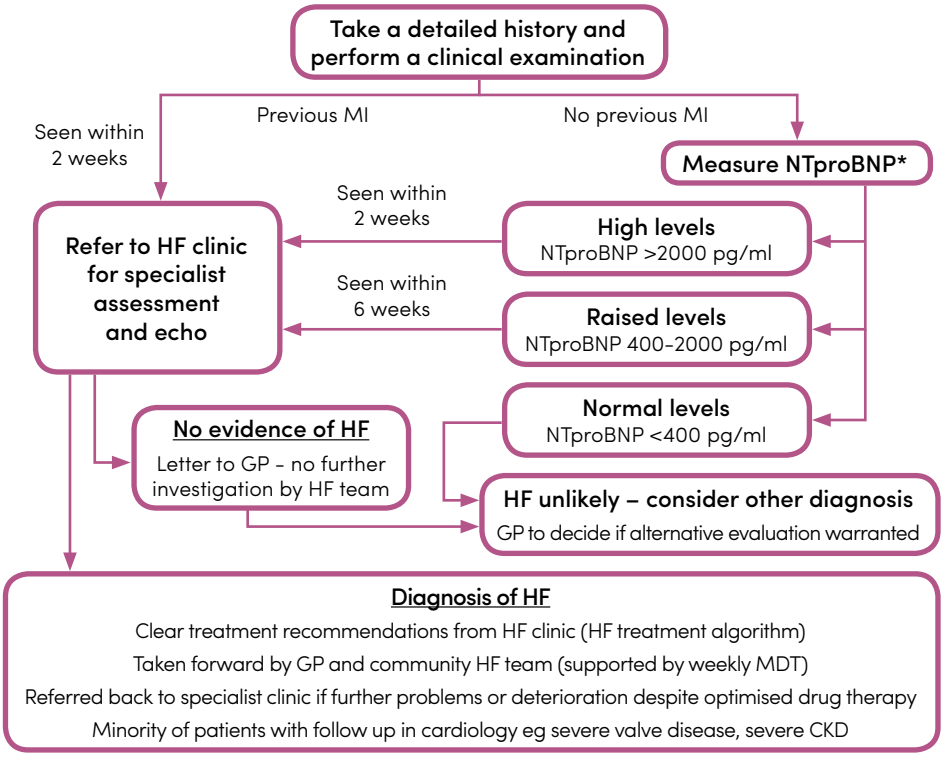
However, despite the introduction of clear referral pathways for patients with suspected HF in primary care, using a simple tick-box electronic form, only 35% of patients with elevated NTproBNP are actually referred in this way.

Further analysis has shown that the greatest delay in the system for patients with highest NTproBNP is not the referral time from primary care to clinic but the time between NTproBNP testing and referral from primary care. This is clearly something which needs to be addressed when setting up such a service.

Outcomes data for the service have shown a significantly lower admission rate (CV and all-cause) for patients referred via the HF clinic than for those not seen in the HF clinic, and patient satisfaction is excellent. In addition, only a minority of patients required secondary care follow up – something with reassuring cost implications for commissioners.

Turning to the value of introducing early specialist input for patients hospitalised with HF, Dr Kalra described the experience of colleagues in Southampton. Having identified an unacceptable level of in-hospital mortality for HF patients, they were able to justify the introduction of a multidisciplinary inpatient heart failure team (HFT) to ensure specialist care for patients admitted across the hospital. Recently published data showed that this significantly reduced inpatient mortality (22% pre-HFT vs 6% post-HFT; p<0.0001) and 1-year mortality (43% pre-HFT vs 27% post-HFT; p=0.001).[3] Post-HFT patients were significantly more likely to be discharged on loop diuretics (98% vs 84%; p=<0.0001), angiotensin converting enzyme inhibitors (ACEIs) (76% vs 65%; p=0.02), ACEIs and/or angiotensin receptor blockers (ARBs) (91% vs 83%; p=0.02), and

Figure 1: Referral pathway for suspected new cases of HF (not appropriate for patients with known HF and changing symptoms)



mineralocorticoid receptor antagonists (MRAs) (68% vs 44%; p<0.0001). The HFT intervention did not affect mean length of stay or readmission rate.

Dr Kalra concluded his presentation by stressing the growing complexity of HF care, bearing in mind patient comorbidities, and the importance of ongoing research, such as the IRONMAN study of HF and iron deficiency in the UK. He drew attention to the value of the BSH in educational initiatives, and its contribution to the Focus on Heart Failure report, and the recent position statement on changes in kidney function and serum potassium during ACEI inhibitor, ARB and diuretic treatment in primary care.[4]

PROF THERESA MCDONAGH

National Audit results: how well have we done?

The latest National Audit has shown a modest reduction in HF inpatient mortality from 9.6% in 2014-15 to 8.9% in 2015-16, with accompanying reductions in 30-day mortality from 15.4% to 14% and one-year mortality from 28% to 26.7%. However, as Professor Theresa McDonagh, Consultant Cardiologist and Professor of Cardiology at King's College Hospital, London, said, there is still substantial room for improvement.

The 2015-16 audit was based on 66,695 admissions to hospitals in England and Wales, representing 82% of admissions for HF as primary diagnosis in England and 77% in Wales. Mean age was 78 and patients were predominantly men, until the highest 85+ year age group. Eighty per cent of patients had moderate to severe HF (NYHA Class III-IV), and 49% had no or only mild peripheral oedema.

During hospital admission, all patients had an electrocardiogram (ECG) and more than 90% had an up-to-date echocardiogram (Echo), though Echo rates were higher for those admitted to cardiology or receiving specialist care than those admitted to other wards or having no specialist input.

Professor McDonagh pointed out that slightly fewer patients had left ventricular systolic dysfunction (LVSD) than in 2014-15 (down from 70% to 68%) and more patients were seen with preserved ejection fraction (EF), valve disease and diastolic dysfunction.

Fewer patients were treated on cardiology wards or seen by a cardiologist than in previous years and Professor McDonagh suspected that this was due to pressure of patient numbers. However, there was a continuing upward trend in the proportion of patients seen by a HF specialist nurse (HFSN). In particular, HFSNs saw a higher proportion of HF patients admitted onto general medical wards (33%) than in 2014-15 (24%).

The prescription of key disease-modifying medicines for patients with HF and a reduced left ventricular ejection fraction (HFrEF) increased, including beta-blockers (BBs) (87.4%) and MRAs (53.5%). However, patients treated on cardiology wards were considerably more likely to be prescribed MRAs than on general, or "other", wards (60.2%, 46.4% and 45.7% respectively). Prescribing levels of most drugs were higher when patients received specialist input than when they did not – irrespective of where they were treated (Figure 2).

Although prescription of most drugs reduced with increasing age of patients, this was less pronounced than a decade ago, so treatment is less 'ageist', said Professor McDonagh. In next year's audit, prescription of ivabradine and valsartan/sacubitril will be included, she added.

Compared to previous years, the Audit showed a clear trend towards reduced length of stay (LOS) for HF patients treated on general wards or not receiving specialist input, while LOS remained stable for cardiology wards.

As in previous years, in-hospital mortality was lower for patients treated in cardiology wards or receiving specialist input than those admitted to other wards or receiving no specialist input (Figure 3). This remained the case following multivariable adjustment for patient risk factors.

Patients discharged from cardiology

Figure 2: Trends in treatment with key treatments, according to specialist input (2015/2016)

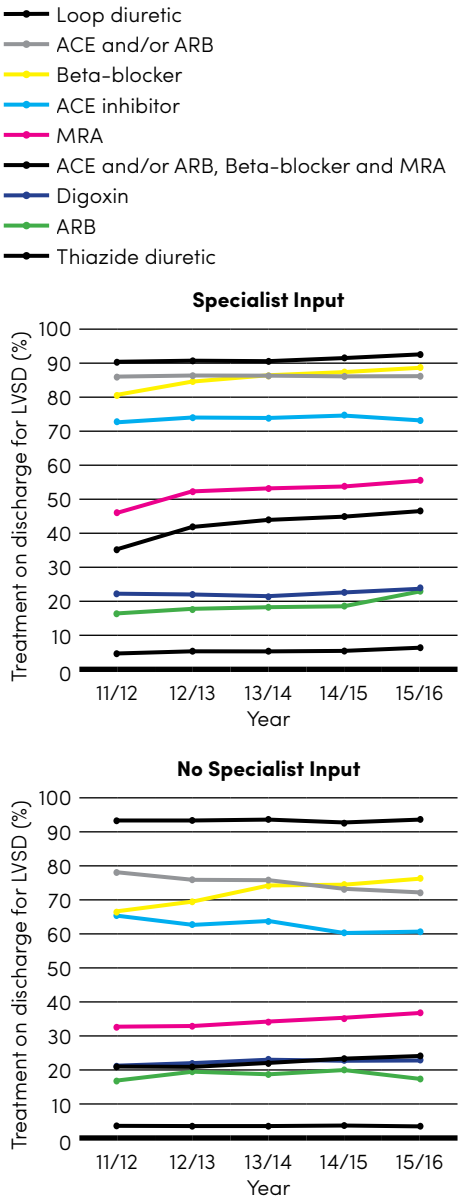


Figure 3: In hospital mortality (2015/16) according to place of care, specialist input and patient age

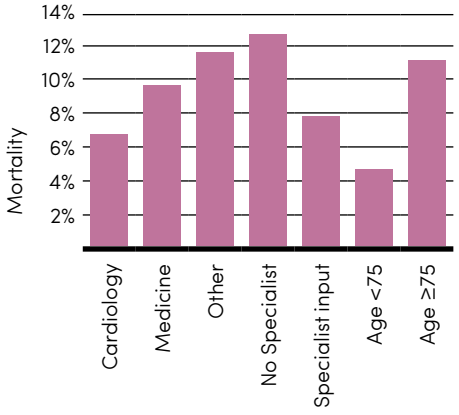
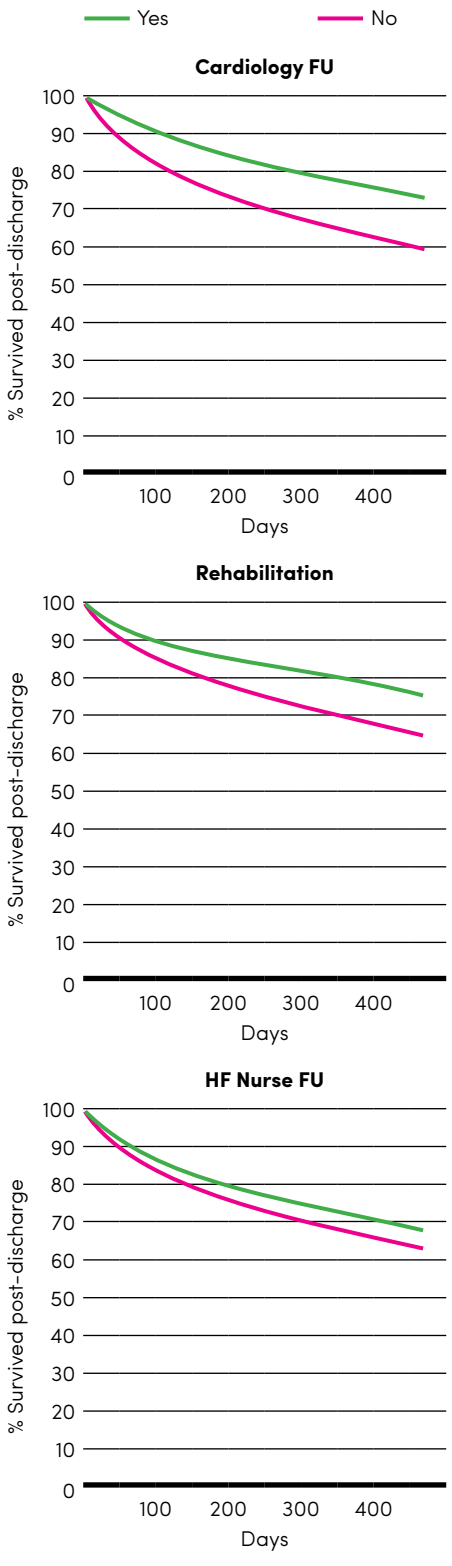


Figure 4: Impact of specialist follow up on survival



wards were more likely to receive specialist follow-up and cardiac rehabilitation after discharge and this was reflected in lower one-year mortality rates (Figure 4).

Professor McDonagh said that, while prescription of disease-modifying drugs is improving, the proportion of patients admitted to cardiology wards remains static and needs to improve. She suggested that the overall improvement in survival may be better than it appears, given the steadily increasing age of patients.

She pointed out that the Audit data are becoming increasingly important for hospitals as they affect achievement of NHS England Best Practice Tariffs and are being used for NICE updates to guidelines. In addition, the Care Quality Commission (CQC) is planning to use six metrics from the Audit for Trust inspections from 2018.

In 2018, a new user-friendly web-based data entry platform will be used so that Trusts can see their Audit data in real-time and compare with other Trusts. A prognostic validation index has been derived and will be validated using the 2015-16 data. If this is shown to be robust, it will be used to produce risk adjusted plots of mortality so that Trusts can see if they are outliers and, once established, this is likely to move into the public domain.

"With all of this, we will hopefully begin to see a greater impact of the Audit data in improving outcomes and reducing mortality," concluded Professor McDonagh.

NICK HARTSHORNE-EVANS

The patient organisation's perspective

The Pumping Marvellous Foundation – the UK's patient-led HF charity – acts as an advocate for fast and efficient diagnosis in HF, for HF specialists to manage HF patient treatment and for HFSNs to play a pivotal role within the community MDT, Nick Hartshorne-Evans, the Foundation's founder and CEO told delegates.

He explained that patients currently see HF as the 'poor relation' of long term conditions – a debilitating condition, with

Figure 5: Pumping Marvellous Foundation educational materials

no support around non-clinical issues, a perceived lack of connectivity in services, and no consistency in service provision or access to gold standard therapies. However, they recognise the strengths of their highly dedicated HF specialists, feel the frustrations of their healthcare professionals (HCPs) and are starting to see advances in treatment.

Naturally, what they want is best treatments, care and support, said Mr Hartshorne-Evans. They want clinicians to listen and act, avoid jargon, and to be honest. They want to be recognised as human and, of course, they want a cure.

To try to bridge the gap between the negative patient perceptions of HF and their personal goals, the Pumping Marvellous Foundation offers a powerful 'neural network' of online communities through which patients, carers and families can obtain support, knowledge, a sense of community, and advice about how to better interact with the care system (Figure 5).

In 2017, the Foundation hosted a Heart Failure Summit which brought 50 leading stakeholders together – patients, carers, cardiologists, other doctors and HFSNs – and prioritised three recommendations from *Focus on Heart Failure* for action.

- Improving the diagnostic pathway to include cost-effective NTproBNP testing and sufficient availability of Echo
- Achieving access to early specialist care for all patients with HF

- Ensuring that there are enough HFSNs and other cardiac nurses to meet patient need

With this in mind, the Foundation is currently carrying out the first ever National Heart Failure Nurse Audit to find out where HFSNs are working and what roles they play in order to advocate for investment to optimise services.

"Once we have these data, we'll be working with all stakeholders to influence change in the way that services are provided. We see this as a paradigm-changing moment for the care of patients with heart failure," said Mr Harshorne-Evans.

Alongside these ground-breaking initiatives, the Foundation is not losing sight of its primary purpose to provide information and support, developed by patients for patients. To view the latest digital content, go to PMTV Live on YouTube™.

PROF MARTIN R COWIE

NICE, STPs, ACOs, AHSNs, CLAHRCs – enough with the acronyms!

If you want to change HF services and improve the quality of care in your area, you need to know how the system works, who to approach and what to tell them. This was Professor Martin Cowie's advice at the end of an enlightening review of the activities of key players in the NHS who can drive change in HF services now and in the future.

"It's really important to understand some of the framework and what motivates the organisations within and allied to the NHS. Are you trying to influence your department, your hospital, your CCG or specialist commissioners? Once you know what you want to achieve, and which agenda you want to be on, you need to be able to articulate it in one or two sentences. Then go to the people you want to influence and lobby them, lobby them and lobby them," said Professor Cowie.

One of the biggest influencers of services commissioned by the NHS is, of course, the National Institute for Health and Care Excellence (NICE) – an "arm's length" executive non-departmental organisation, with its own charter, reporting to the Department of Health but operationally independent of Government.

Professor Cowie explained that NICE Quality Standards (of which there are seven for chronic and six for acute HF) are a key component of the drive to develop an outcomes-based approach to improving quality and consistency of care, and Trusts are judged against their ability to reach them. NICE Indicators for Clinical Commissioning Groups (CCGs) and general practice are used nationally and locally to help the NHS to measure the delivery of safe, effective, and cost-effective care and services. Although six indicators relate to HF, easily the most important is all cause mortality 12 months after hospital admission.

Collaborations for Leadership in Applied Health Research and Care (CLAHRCs) make up the research arm of the NHS and

Figure 6: Academic Health Science Network (AHSN) in England

- **North East and North Cumbria** www.ahsn-nenc.org.uk
- **Innovation Agency** www.innovationagencynwc.nhs.uk
- **Greater Manchester** www.gmahsn.org
- **Yorkshire & Humber** www.yhahsn.org.uk
- **East Midlands** www.emahsn.org.uk
- **West Midlands** www.wmahsn.org
- **Eastern** www.eahsn.org.uk
- **West of England** www.weahsn.net
- **Imperial College Health Partners** www.imperialcollegehealthpartners.com
- **UCLPartners** www.uclpartners.com
- **Health Innovation Network** www.hin-southlondon.org
- **Oxford** www.oxfordahsn.org
- **Kent, Surrey & Sussex** www.kssahsn.net
- **Wessex** www.wessexahsn.org
- **South West** www.swahsn.com
- ***The* AHSN *Network*** www.ahsnnetwork.com

are partnerships between local providers of NHS services and NHS commissioners, universities, other relevant local organisations and the relevant Academic Health Science Network (AHSN). With a £124 million budget from 2014–2019, the primary focus of the 13 CLAHRCs is research into chronic disease and public health interventions.

Professor Cowie highlighted the AHSNs as one of the main drivers for change in the NHS. Set up by NHS England in 2013, the 15 AHSNs work across all sectors involved in health and care (Figure 6). Their core objectives are to identify and address unmet medical needs, build a culture of partnership and collaboration, speed up adoption of innovation into practice to improve clinical outcomes and patient experience, and create wealth.

"Centred around university hospitals, AHSNs aim to speed up the process of change, for example implementing NICE guidelines and introducing evidence-based new drugs consistently and rapidly across the country. So it's really important to find out what your AHSN is up to, and whether heart failure is on their agenda and how you can partner with them," said Professor Cowie.

Finally, he brought delegates up to date with the role of Sustainability and Transformation Partnerships (STPs), set up between the NHS and local councils in 44 areas of England, to improve health and care, based on local needs.

Since April 2017, STPs became the single application and approval point for local organisations to access NHS transformation funding, Professor Cowie pointed out, so it is essential to influence STP boards to achieve change.

In eight areas of England, these STPs have evolved into integrated 'accountable' care systems (ACS) through which providers and commissioners of health and social care come together with a combined budget and fully-shared resources to serve a defined population.

As Professor Cowie stressed: "This integration which is being rolled out across the country is a seismic shift in the way the NHS works, so it is essential to be aware of what is happening and how it will affect us."

PANEL DISCUSSION

Does the Heart Failure Audit capture data on patients admitted for non-HF reasons who are then found to have HF so we can see how their outcomes compare with patients admitted for HF?

Professor McDonagh: No, it's difficult enough to do the Audit on patients with heart failure as their primary diagnosis so, unfortunately, we are not able to include patients with it as a subsidiary diagnosis. At some point in the future, with better linkage to other audits, such as COPD, diabetes and chronic kidney disease, which will also have patients with HF in them, we may be able to get answers to the question of how outcomes compare.

Professor Cowie: Once we have a 'big data', web-based platform won't this sort of thing just 'fall out' or is that too ambitious?

Professor McDonagh: The input end will still be cumbersome until we get a national IT system with everyone using the same electronic healthcare record and a common dataset. However, the web-based platform will help in that, at least for the cardiovascular audits, patients who are being entered with MIs or ICDs, for example, who also have heart failure, will only be inputted once, so the system will be more integrated.

We are finding that hypertrophic obstructive cardiomyopathy (HOCM) is quite common among our African Caribbean patients with heart failure. How common is it within the broader heart failure population?

Dr Kalra: About 50% of patients who come through our pathway because they have raised NP levels don't have heart failure. Among this 50%, we have patients with atrial fibrillation and others with underlying structural heart disease such as HOCM. But it's not a common presenting feature by that pathway. It may present as a result of chest pain, palpitation or family history. Specialist review is essential because interpreting Echo is far more than just looking at ejection fraction.

Nick Hartshorne-Evans: Don't forget there is a patient organisation called Cardiomyopathy UK which is very good at supporting patients with cardiomyopathy. All the cardiovascular-related patient support groups are becoming increasingly integrated in the way they work and are very helpful in providing help and information to patients.

We have a good heart failure nurse service in our acute trust, but we have just one part-time community heart failure nurse. We've campaigned and tried to get more but the trust is overspent and cutting back. What do you advise?

Professor Cowie: This is the problem we keep hearing about. Knowing local structures, having good data, making a strong business case and having local advocates will all help but it's undoubtedly tough, and we have to just keep reinforcing our message. Quite often, the accountable care organisations are looking for projects where they can demonstrate the effects of an intervention quite quickly. So something like heart failure nurses could come under this if you can offer to rapidly show the value of reducing admissions.

Professor McDonagh: We certainly need both acute and community heart failure nurses and, where I work, we now have a balance of eight nurses working in the acute sector and eight in the community – across Guy's, St Thomas' and King's. We're trying to integrate the service and merge them into one team, managed by the same people. We're not quite there yet, but we want them functioning across both sectors and maybe rotating between acute and community care. So that may be one option for others who are having difficulty getting either acute or community heart failure nurse services.

DR SIMON WILLIAMS

Chronic heart failure: the ESC guideline and beyond

The new definition of HF to include mid-range ejection fraction of 40-49% aroused greatest discussion when the updated European Society of Cardiology (ESC) guidelines on acute and chronic heart failure were published last year. But changes to ESC treatment recommendations and results of HF studies published in the subsequent 12 months are likely to have a greater impact on daily practice – as Dr Simon Williams, Consultant Cardiologist at the Wythenshawe Hospital, Manchester, demonstrated.

He explained that, within the new ESC treatment algorithm, the inclusion of valsartan/sacubitril to replace ACEI therapy in patients with EF < 35% who are still symptomatic after ACEI, BB and MRA therapies is supported by Class I evidence from the PARADIGM-HF study.[7]

For patients who are still symptomatic after core therapies and are in sinus rhythm with a QRS duration >130msec, the guidelines recommend cardiac resynchronisation therapy (CRT). As Dr Williams pointed out, this recommendation is based on Class I evidence for those with left bundle branch block (LBBB) and Class IIa evidence for those without LBBB. He added that CRT is now contraindicated for patients whose QRS is < 130msec (in contrast to the previous 120msec threshold), though this is supported only by Class III evidence. For patients in sinus rhythm and a heart rate > 70, ivabradine is recommended, supported by Class II evidence.

Dr Williams also drew attention to ESC recommendations for the use of an implantable cardioverter-defibrillator (ICD) as primary prevention in patients with HF and ischaemic heart disease, for which there is Class I, Level A evidence and in those with dilated cardiomyopathy for which there is Class I, Level B evidence.

Turning to recent trials that may – or may not – influence current practice, Dr Williams presented data from the ATMOSPHERE study which randomised 7016 patients with symptomatic HFrEF (LVEF < 35%) to enalapril, the direct renin inhibitor, aliskiren, or both, with a median follow up of 37 months.[8]

He explained that as the pre-specified test for non inferiority was not met, it can be concluded that aliskiren was not equivalent to enalapril.

"This has ruled out the theory that aliskiren could be good for heart failure, and suggests we have reached a ceiling in the level of drugs we can give that affect the renin angiotensin system," said Dr Williams.

Another recent trial which failed to meet its primary endpoint was the REM HF trial which compared intensive, remote monitoring (RM) of patients with CHF and a device (CRTP/CRTD/ICD), with weekly downloads of data versus usual care (UC).[9] No significant difference was seen in the primary end point of CV death and all cause CV hospitalisation, 42.4% with RM vs 40.8% with UC (HR 1.01; 95% CI: 0.87 to 1.18; P=0.87), though Dr Williams suggested this may have been due to the high quality of usual care.

A third trial, the DANISH study, investigated the benefits of primary prevention ICD vs standard treatment in over 1000 patients with symptomatic non-ischaemic HFrEF – something which has a Class I recommendation in the ESC guidelines. At median follow up of 68 months, primary endpoint data failed to show any benefit, with all cause mortality of 21.6% in the ICD group vs 23.4% in the control group (HR 0.87; 95% CI, 0.68 to 1.12; P=0.28).[10] Dr Williams explained that there was a positive signal in younger patients (<68 years) but the overall low event rate in the trial reflected the benefit of medical treatment for patients with non-ischaemic HFrEF.

"It's a very difficult clinical scenario and there is a lot of difference of opinion but the message from this trial is that there is no added benefit from putting an ICD into patients with a dilated cardiomyopathy, even though it gets a Class I recommendation in the ESC guidelines," he said.

In contrast to the disappointing findings of these studies, data from the REALITY AHF study may trigger a change in clinical practice, suggested Dr Williams.

In this prospective observational study, 'door to i.v furosemide' (D2F) time was measured in 1291 patients with acutely decompensated HF, treated in Japan.[11] The median D2F was 90 minutes, with a range of 36-186 minutes, and 37% of patients had a D2F of 60 minutes – defined as the early treatment group. In-hospital mortality was significantly lower in this early treatment group (2.3% vs 6%, p=0.002) even after multivariable analysis.

"Although REALITY was an observational trial, the results are very interesting and it may be time for us to think about door-to-furosemide time in the same way that we used to think about door-to-needle time with thrombolysis treatment for myocardial infarction patients," suggested Dr Williams.

LOUISE CLAYTON

HF nurse: navigator par excellence?

HFSNs have long been pivotal to enabling patients to access timely, quality care but, as Louise Clayton, Advanced Nurse Practitioner at the University Hospitals of Leicester, explained to delegates, a potentially open-ended role and limitations on funding in many areas mean that some rationalisation is needed to guide what is realistic to expect HFSNs to do.

Ms Clayton showed that there is good evidence to support the value of HFSNs going back over 15 years, with trial results showing that post-discharge follow up by an HFSN, including optimising medicines, patient education and encouraging self-management, significantly reduces subsequent HF admissions, and saves money.[12,13] As a result, both NICE and

ESC guidelines recommend that post discharge follow up for patients with HF should include HFSNs.[2,6]

Ms Clayton reported that, in Leicester, which has one of the highest levels of HF in the country, 65% of patients receive HFSN follow up, resulting in major capacity issues in the area – as also occurs in many parts of the UK.

The HFSN role typically includes:

- Face to face contact with patients (supplemented by other methods, such as telephone or Skype™ contact, where appropriate)
- Promoting prescription, adherence to and optimisation of evidence based therapies (medicine and device)
- Educating patient, carers and health care professionals
- Providing patients with the 'tools' to self-monitor and self-manage (typically, symptom monitoring and diuretic adjustment)
- Monitoring patients including observations, biochemical markers and symptom changes

In addition, as a significant proportion of patients experience anxiety and depression and often find it hard to access appropriate support, HFSNs frequently find themselves liaising with other MDT members to provide psychological support for patients and families and coordinate other services, including rehabilitation, palliative care and access to clinical trials.

Ms Clayton explained that, as many Trusts cannot obtain funding for such a comprehensive service, a postcode lottery has emerged in many areas whereby HFSN follow up may be restricted to patients with LVSD or to Class NYHA III/IV patients. In addition, two week post-discharge follow up is rarely achievable and access to MDTs, GPwSIs or local "champions" is not available.

In considering how HFSN activities could be rationalised to ensure that patients most in need of follow up care do not miss out, Ms Clayton argued strongly against use of NYHA Class to prioritise patients, pointing out that many patients with NYHA Class I disease benefit from specialist management of their medication. However, she suggested that risk indicators, such as risk of repeat admission, may have a place in identifying patients most likely to benefit from follow-up care when services are limited. The lack of hard evidence to show that patients with HFpEF benefit from specialist follow up also makes it hard to justify including these patients within the HFSN remit, especially where there are strong financial pressures.

Similarly, as high intensity patient management has not been shown to improve outcomes, HFNSs may want to look carefully at why they see some patients very frequently and whether this is necessary.

Many HFSNs struggle with high case loads and Ms Clayton pointed out that all should be working towards providing follow up care for a maximum of perhaps 60 patients. To achieve this, careful discharge planning is needed and Ms Clayton proposed that it is safe and effective to discharge patients if there has been no change in their HF medication for two months and no HF admission for three months.

"These discharge criteria have been shown to be safe and effective, and it's very important to have a discharge process in our service specification if we are to rationalise our services effectively," said Ms Clayton.

Other challenges facing HFSNs include meeting patient expectations, and training nurses to fill the large number of

PANEL DISCUSSION

As GPs, we get letters asking us to do multiple titrations of heart failure drugs and blood tests showing renal function and potassium levels going up and down which is all very time consuming to treat. Does the panel have any suggestions for how GPs can manage their heart failure workload?

Dr Chris Arden: We are working in challenging times across the whole system, and these patients undoubtedly benefit from intensive support wherever it comes from. Ideally, we should be upskilling primary care to provide patients with a soft landing in the community setting. We know what needs to be done and there are models to follow, but the resource and training are often lacking. We need a responsive model through which we act quickly when heart failure patients decompensate, and we need to keep up with all the changes in therapy over the last few years so we know how to optimise care. That does mean developing services that will support the whole primary care team, including both GPs and heart failure nurses.

Do we need clear discharge criteria from hospital services because we surely can't keep seeing all the heart failure patients who come through secondary care?

Dr Simon Williams: We need to talk about this more. In Manchester, no one is discharged from heart failure services but, once patients are uptitrated and optimised, they are either transitioned into the general cardiology clinic or transferred into the community where they are seen by someone with an interest in heart failure about every 12 months. The NICE quality standard says they should be seen every six months, but we don't have enough specialist people for that, so we do what we can.

Audience member: If patients are well educated about their heart failure, they know when they should be reviewed and, for example, they can be given blood test forms and told when tests need to be done, so they play a bigger role in their own care. In addition, patients will come up for review through practice registers and if we educate practice nurses about what is needed as well, it will ensure that our heart failure services don't drown.

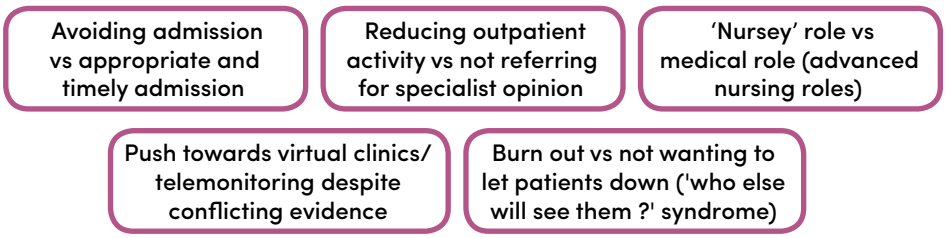
Professor Cowie: We can't tell patients that they are no longer at risk, but we can tell them that, although the service will always be there for them if they need it, at the moment they don't need the same high level of input they've been having. We need to be flexible about what we offer, and move away from 'one size fits all'.

HFSN vacancies. Ms Clayton explained that considerable funding is being directed towards recruiting Advanced Nurse Practitioners to fill junior doctor hours, and this raises additional problems as nurses then have to juggle junior doctor and more traditional nursing roles within the same job.

Added to these conflicts is the requirement to reduce hospital admissions and outpatient activity where, in some cases, admission or ongoing care may be the most appropriate course for a patient with HF, said Ms Clayton (Figure 7). She concluded by urging colleagues to maintain their essential nursing role with HF care:

"I'm often told I'm being too 'nursey' and I take that as a compliment. Just because we have an advanced or specialist nursing role doesn't mean we should be acting as doctors. Nursing is a key part of what we do, and it is the holistic care we provide that has proved so worthwhile for our patients with heart failure."

Figure 7: Conflicts within the HFSN role



DR KLAUS WITTE

Acute heart failure: what do the ESC and NICE guidelines recommend?

In the absence of any recent clinical evidence to support novel approaches to treatment, the management of patients with acute HF should focus on accurate diagnosis and optimisation of pharmacological and device therapies once patients are stabilised, concluded Dr Klaus Witte, Consultant Cardiologist at the Leeds Institute of Cardiovascular and Metabolic Medicine.

Acute HF can occur in patients who have been relatively well and then develop acute breathlessness that takes them to A&E in quite a distressed state or in those who have gradually worsened over the previous month or so and suddenly decided to seek help at A&E.

"These two groups need to be managed very differently and, if you class them both as acute heart failure, you won't treat either of them correctly," said Dr Witte.

For the first group, the aim is likely to be to reduce pulmonary oedema by treating symptoms and improving oxygenation in order to improve survival. For those in the second, acute-on-chronic group, a steadier approach may be needed to reduce fluid overload and make patients more comfortable while instituting a longer term strategy for improving survival (Figure 8).

Dr Witte advised delegates against trying to manage patients according to whether they are 'dry' or 'wet' (as in the ESC guidelines), and to stick to the simpler approach advocated by NICE. This involves early specialist input and discharge planning, diagnosis, assessment and monitoring, pharmacological therapy for acute symptoms and long term treatment with disease modifying agents.

Figure 8: Acute heart failure: two different presentations

PULMONARY OEDEMA

Aims:
- **Symptoms**
- **Survival**
- **Oxygenation**
- **Stable haemodynamics and rhythm**

FLUID OVERLOAD

Aims:
- **Offload**
- **Comfort**
- **Rhythm**
- **Early decision about optimal therapy or palliation**

He pointed out that, although BNP testing is one of the few evidence-based recommendations for diagnosis in the NICE guidelines, it may not be specific for acute HF as levels are affected by pneumonia and renal failure.

Turning to treatment, Dr Witte again pointed to the lack of large randomised trial evidence supporting many NICE recommendations and stressed that much of the guidance is based on expert opinion or small trials or registry data. He added that it is time for a further review of current pathways to identify which aspects are essential and which need to be removed.

Patients should not be routinely offered noninvasive ventilation (CPAP or NIPPV) unless their respiratory efforts are tiring or any pulmonary oedema is failing to respond to diuretics, said Dr Witte, and he advised talking carefully with a patient's family before considering invasive ventilation for respiratory failure or reduced consciousness in the present of LVSD. Similarly, ultrafiltration should not be offered routinely but may be considered when there is diuretic resistance.

The focus of NICE guidance for acute pharmacological therapy is i.v diuretics (bolus or infusion) rather than i.v. nitrates, but Dr Witte advised against giving a furosemide infusion to patients with acute pulmonary oedema, or bolus furosemide therapy to those with chronic congestion worsening over the previous month – infusion appears to work better in this setting. Renal function, weight and urine

output should be monitored.

BBs should be continued during a patient's admission, unless there is bradycardia or heart block, and BBs and ACEIs should be started before discharge. Renal function, electrolytes, heart rate, blood pressure and overall clinical status should be monitored and patients should be stable for 48 hours before discharge.

"That's quite a challenge because the minute patients are stable, there is a tendency to get them out of hospital. However, I have stressed the NICE guideline of stability for 48 hours to discharge coordinators because, if the recommendation isn't followed, there is a high likelihood that patients will bounce back," concluded Dr Witte.

LYNDA BLUE

Heart failure specialist nursing – outreach, in-reach, or both?

A single, integrated HFSN service which owns the whole care pathway, with one provider across hospital and community, has the potential for greater sustainability, flexibility and improved access for patients to services in a timely manner.

This was the conclusion of Lynda Blue, Heart Failure Nurse Adviser at Guy's and St Thomas' Hospital, King's College Hospital and the communities of Southwark and Lambeth, at the end of an extensive review of the evidence supporting the role of HFSNs in HF across both hospital and community services.

She explained that randomised trials of nurse-led interventions in HF management have shown that specialist HF nurses have the potential to make a substantial impact on the overall burden of HF by limiting costly admissions, and improving quality of life for patients.[13-15]

In addition, a meta-analysis has found that, collectively, these trials show that nurse-led interventions may even reduce mortality,[16] and patients under the care of an HF specialist nurse are five times less likely to be hospitalised compared to all HF patients.[17]

Ms Blue drew attention to data from the most recent National Heart Failure Audit which underlined the growing role of HFSNs.[5] Specialist nurses saw over a quarter of patients on admission and 33% of those on general wards, compared to 24% in the previous audit, and 57% of patients received HFSN follow up.

She agreed with Ms Clayton that HFSNs have important educational, treatment, coordinating, referral and monitoring roles in both acute and community settings, though these will vary depending on the nature of local services. However, a single integrated service has a number of advantages:

- Improves governance - HFSNs all working to the same standards, getting the same level of training and education, working to the same level of competence
- Provides greater sustainability and flexibility – reducing the need to cancel clinics/visits as there is always someone who can move from one part of the service to cover somebody who is off sick or on leave
- Increases numbers of patients able to be followed up within 10 working days following hospital discharge
- Improves communication during transition from hospital to community or vice versa
- Makes it easier to audit what is going on across the whole team and identify when and where problems occur. Team members having difficulties can be moved, upskilled and managed without a disruption to the service
- Improves GP access to cardiology consultants
- Improves patient access through a centralised contact number, enabling access to advice/support in a timely manner
- Provides HFSNs with the opportunity to rotate through the pathway, and become better skilled in acute, chronic and palliative HF management

Looking to the future, Ms Blue suggested that, as HFSNs continue to reinforce and extend their role, additional services may include delivering i.v. diuretics in ambulatory care units and patients' homes, to support early discharge and avoid hospital admission, and delivery of subcutaneous diuretics to people at end-of-life in their own homes. HFSNs may also play a valuable additional part in educating and supporting healthcare professionals in the delivery of i.v diuretics in residential care homes.

PROF ANDREW CLARK

Difficult topics: HFpEF, acute heart failure and diuretic resistance

Heart failure with preserved ejection fraction (HFpEF) is a misleading term and should be replaced by heart failure with normal ejection fraction (HFnEF), proposed Professor Andrew Clark, Professor of Clinical Cardiology at Hull York Medical School in his closing presentation on difficult topics in HF.

Pointing out that it is impossible to know whether a patient presenting with possible HF symptoms and an EF in the normal range used to have a higher EF, he questioned current claims about an 'epidemic' of HFpEF and the validity of data suggesting that its impact on survival is as great as HFrEF.[18] The fact that the reproducibility of EF measurement is poor, and that there is a broad range of EF in patients without cardiovascular disease, makes it even more difficult to identify patients who truly have HFpEF/HFnEF.

"When we talk about this epidemic of heart failure with normal ejection fraction, we have no idea what we are talking about. When a person sits in front of us who is breathless, how do we know that it is due to their heart?" asked Professor Clark.

He presented data from a study of 159 consecutive patients with suspected HF referred by their GP, 109 of whom had normal LVEF, in which only seven patients lacked an alternative cause for their symptoms, such as obesity, lung disease

or myocardial ischaemia.[19]

He also presented data from a study of over 5000 randomly selected patients aged over 70 living at home, which showed that a large proportion had clinically significant breathlessness (MRC grade 3-5), yet only a minority had LVSD.[20]

Professor Clark blamed the lack of effect of interventions such as digoxin, candesartan, perindopril and spironolactone in HFpEF trials on the fact that patient populations are so poorly defined and many participants simply do not have HF.

"The waters are getting ever muddier and we know less and less what we're talking about as time goes by. I don't doubt that plenty of people are breathless and that breathlessness is related to bad outcomes, but it doesn't mean that breathlessness is due to the heart," said Professor Clark.

Turning to the failure of clinical trials to identify effective new treatments for acute HF, Professor Clark highlighted the difficulty of recruiting the type of patients who are typically seen in hospital practice. While clinical trials are designed for patients with acute HF who have acute pulmonary oedema, most patients are hospitalised because they have fluid retention, not pulmonary oedema, and Professor Clark questioned whether it is even possible to recruit, consent and randomise patients who turn up in A&E very ill with pulmonary oedema in the middle of the night. In addition, pulmonary oedema is generally precipitated by an arrhythmia, acute coronary syndrome or another problem, which are exclusion criteria for clinical trials.

"We're trying to do clinical trials for a condition which is rare in the first place and then excluding patients with all the things that cause that condition," said Professor Clark.

Effective diuresis is the key to successful treatment of patients with peripheral oedema and, all too often, patients who are said to be 'diuretic resistant' simply aren't being given a sufficiently high dose of furosemide, he told delegates. Provided patients are given a continuous infusion of furosemide and stay in bed rather than sit in a chair, they will lose weight and fluid.

Professor Clark advised that closely monitored progressive nephron blockade is helpful for difficult cases. This involves using a loop diuretic to block the thick ascending loop of Henle and then a thiazide to block the hypertrophied distal convoluted tubule. If, on very rare occasions, this is not sufficient, ultrafiltration is an option though data from the CARESS-HF study suggested that this approach resulted in slightly worse renal function than with conventional pharmacotherapy.[21]

Professor Clark concluded that, although there were a lot of design problems with the study, and there is probably a role for ultrafiltration in carefully selected patients, CARESS-HF did suggest that clinicians in the UK may be under-treating hospitalised HF patients. In CARESS-HF, patients in the pharmacotherapy group were treated with a bolus of up to 80 mg of furosemide followed by a continuous infusion of 30 mg per hour, together with metolazone twice daily, and despite this

PANEL DISCUSSION

Should GPs be using metolazone?

Professor Clark: I wouldn't suggest it as a first line approach. Personally, I use bendroflumethiazide but that's not because I don't like metolazone.

Professor Cowie: Many patients adjust their fluid retention themselves using those drugs because they know what worked last time and are more expert than us. But you do have to be careful that they don't try to get really thin ankles and get into trouble.

Patients seem to have a very variable response to metolazone – some get a good, brisk response, and others need to be on it for a long time. Some can tolerate it very well, whereas others go into renal failure on a small dose. What do you advise?

Professor Clark: Metolazone is always described as 'thiazide like' and it's supposed to have pharmacological effects on the proximal convoluted tubule. Lots of people swear by it, but in a randomised, double blind trial of metolazone and bendroflumethiazide, there was no difference in the diuretic effect.

Professor Cowie: In the recent literature, there are several reports of patients with renal congestion and, far from making patients worse, giving more aggressive diuretic therapy can improve things, especially if patients have raised JVP and right-sided problems, so that is another reason not to hold back because of concerns about renal function.

Heart failure nurses can't be at A&E 24 hours a day, so how can we ensure that patients are picked up?

Professor Cowie: Given that patients in cardiology wards will get expert input from cardiologists, why don't heart failure nurses base themselves in the emergency room and care of the elderly wards where patients may not otherwise get specialist care?

Audience member: At my Trust, nurses don't base themselves in the cardiology ward and move around the hospital and have also started a sort of ambulatory i.v. furosemide service.

Lynda Blue: There was concern about patients living alone when we started our BHF initiative for i.v. furosemide at home, but the only downside was that nurses had to stay a bit longer with those patients. We weren't talking about patients with crashing pulmonary oedema, but about treating patients with mild problems at an early stage before they had a chance to get worse.

Audience member: Seven years ago, we started a register of patients with heart failure at admission, so every time a patient on the register comes back into hospital we are automatically notified through a list that we receive at 8am each morning. We then go along to see them and, if we feel they should see a cardiologist, we put them on the cardiologist's daily ward round.

combination, renal function improved.

"The one message you can take home from CARESS-HF is that we are probably under-treating patients with diuretics," he said. "Most respond well to 10mg per hour but, for patients who get stuck, we really haven't reached the limit of diuresis unless we get to furosemide 30mg per hour plus metolazone."

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