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Our Action Plan Better Health, Better Care, which I launched in December 2007, confirmed that we wanted Coronary Heart Disease (CHD) and stroke to continue as one of the national clinical priorities for NHSScotland. We also promised that the CHD and Stroke Strategy, which was first published in 2002 and updated in 2004, would be refreshed, to bring it fully into line with the general approaches set out in Better Health, Better Care, especially in relation to the management of long-term conditions.

In keeping with the ethos of mutuality which we want to promote within NHSScotland, we have produced a consultation document to allow as wide a range of people as possible to contribute to the revised strategy which we’ll be publishing later in the year.

As you’ll see when you read the consultation document which follows, we haven’t tried to produce a treatise on cardiology or stroke medicine. We want instead to concentrate on the areas which we know haven’t received the attention they might have had: issues such as inherited cardiac conditions (including those resulting in sudden cardiac death); cardiac rehabilitation; and longer-term support in the community for those who have been discharged from hospital after a stroke.

We also want the strategy to reflect our general work on health improvement and the reduction of health inequalities. Cardiovascular disease remains a priority, not least because much of it can be prevented through tackling the key risk factors involved – smoking, diet and physical activity – and because of its association with significant health inequalities.

The consultation also emphasises the importance we attach to making sure that research is translated into new treatments as swiftly as possible, so that people in Scotland with heart disease, or who have had a stroke, get access to care that stands comparison with the best elsewhere in the world.

I very much hope you will take the opportunity offered by this consultation to help us identify the key pieces of work that should feature in the action plan which will form the core of the revised strategy. We have to make sure that services in this clinical priority area meet people’s needs, and that we learn from people’s experience of existing services to make sure any gaps are plugged, as part of a process of continuous improvement.

I would like to see contributions from people who have any form of cardiac disease or who have had a stroke, their families and carers, the voluntary sector organisations which act as the advocates of people with any kind of cardiovascular disease, and those who have a personal or professional interest in any of the issues covered by the consultation document.

Nicola Sturgeon, MSP
Deputy First Minister and Cabinet Secretary for Health and Wellbeing
1. INTRODUCTION

1.1 Better Health, Better Care, Scotland’s action plan for health and wellbeing, confirmed that both Coronary Heart Disease (CHD) and stroke remain national clinical priorities in Scotland and committed the Scottish Government to refreshing the national clinical strategy for these conditions.

1.2 CHD is a disease of the heart and coronary arteries caused by the build up of fatty materials in the blood vessels that supply the heart with oxygen. This can cause a heart attack, chest pain or angina. Stroke is a “brain attack”, caused by a disturbance to the blood supply to the brain. Both CHD and stroke are classed as types of cardiovascular disease (CVD).

1.3 The Scottish Government’s objective for a Healthier Scotland is to “help people to sustain and improve their health, especially in disadvantaged communities, ensuring better, local and faster access to healthcare”. This strategy examines the implications of this objective for the way in which we tackle CHD and stroke across Scotland. It sets out a series of potential approaches in order to improve people’s experience of care, tackle health inequalities, embed services to a greater extent in local communities and ensure that high quality services are planned and delivered efficiently.

1.4 In developing this draft strategy, we have worked closely with key voluntary sector organisations such as the British Heart Foundation Scotland and Chest, Heart and Stroke Scotland (CHSS). We now hope to build further on these relationships, as we discuss this draft more widely and agree a shared vision and action plan for CHD and stroke in Scotland.
2. WHERE WE ARE NOW

2.1 Considerable progress has been made since the publication of the original *Coronary Heart Disease and Stroke Strategy for Scotland* in 2002 and the updated version published in 2004. Outcomes have improved and services have benefited from new investment, new technology and the development of best practice clinical guidance.

Prevalence

2.2 It is estimated that 14.9% of Scottish men and 14.5% of Scottish women are living with some kind of cardiovascular disorder. The prevalence of all conditions increases markedly with age.

Figure 1: Proportion of People in Scotland with any Cardiovascular Condition by Age and Sex

![Figure 1: Proportion of People in Scotland with any Cardiovascular Condition by Age and Sex](source: Scottish Health Survey 2003)

2.3 The most common condition is angina, with 6.6% of men and 5.6% of women reporting that they had had this condition at some point in their lives. The biggest difference between the sexes relates to heart attacks, which is reported as being 4.2% in men and 2.4% in women.

Figure 2: Prevalence of Cardiovascular Conditions in Scotland 2003 (%)

<table>
<thead>
<tr>
<th></th>
<th>Angina</th>
<th>Heart attack</th>
<th>Heart murmur</th>
<th>Abnormal heart rhythm</th>
<th>Other heart trouble</th>
<th>Stroke</th>
<th>Any cardiovascular condition</th>
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<tbody>
<tr>
<td>Men</td>
<td>6.6</td>
<td>4.2</td>
<td>2.6</td>
<td>4.8</td>
<td>2.3</td>
<td>2.4</td>
<td>14.9</td>
</tr>
<tr>
<td>Women</td>
<td>5.6</td>
<td>2.4</td>
<td>3.7</td>
<td>5.5</td>
<td>1.6</td>
<td>2.1</td>
<td>14.5</td>
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Source: Scottish Health Survey
2.4 This prevalence is reflected in the number of patients seen each year by General Practitioners in Scotland. Although this number has declined over the past few years, it is still estimated that 82,000 patients with CHD and 24,700 patients with stroke or transient ischaemic attack visit their GP each year.

**Hospitalisation**

2.5 CHD and stroke continue to represent two of the major causes of admission to Scottish hospitals. Non-elective admissions for heart failure have dropped very significantly over this period (Figure 3), but there has been little decline in elective admissions for heart failure (Figure 4).

**Figure 3: Non-elective Admissions**

**Figure 4: Elective Admissions**
Mortality

2.6 Across Scotland, there has been a continual downward trend in rates of cardiovascular mortality over the past 10 years. Figure 5 shows the progress that has been made towards meeting the target of a 60% reduction in premature (under 75) CHD mortality between 1995 and 2010.

2.7 Despite the achievement, the rate of decline in CHD mortality for men and women aged 35-54 years has now flattened out. The annual percentage change in men fell from 6.28% between 1986 and 2003 to 0.55% between 2003 and 2006, while there was a small increase in mortality rates amongst young men in 2005-2006. This reflects an increase in risk factors such as obesity and levels of diabetes amongst younger people and is in line with trends in other parts of Western Europe.

Figure 5: Coronary Heart Disease for ages under 75 Age Standardised (European Standard Population) Mortality rate per 100,000 Population

2.8 A further target was set in 2004, aimed at achieving an additional 27% reduction in premature mortality from CHD by 2008 for the most disadvantaged communities. The CHD mortality rate in under 75s in these communities has decreased by 18.3% from 112 per 100,000 population in 2003 to 91.6 in 2006 and if this trend continues, the 2008 target should be met.

2.9 In 2007, this target was superseded by one aiming to reduce CHD mortality among the under 75s in the most deprived 15% of areas in Scotland, using 2006 data as the baseline. However, between 2003 and 2006 the two most deprived quintiles showed an increase of 16.8% and 10% respectively and it is clear that an additional focus in such areas is required if we are to meet the new target.

2.10 The picture in terms of stroke deaths is more consistent, with latest figures showing a reduction in mortality from stroke in the under 75s from 37.5 deaths per 100,000 in 1995 to 20 deaths per 100,000 in 2006 (Figure 6). If this trend continues, the target of a 50% reduction in mortality from cerebrovascular disease in this age group should be met.
Figure 6: Cerebrovascular Disease for ages under 75 Age Standardised (European Standard Population) Mortality rate per 100,000 Population
3. HEALTHY LIFESTYLES

3.1 Better Health, Better Care sets out a series of actions designed to increase healthy life expectancy in Scotland. It sees NHSScotland as having an enabling role, creating the conditions in which people have the confidence, motivation and ability to make healthy choices and providing professional services and support where these are required to support such choices.

Smoking

3.2 Smoking has long been understood to be a significant cause of cardiovascular disease, with smokers exhibiting raised levels of fibrinogen (a protein which causes blood to clot), increased blood viscosity and reduced levels of blood oxygenation. In May 2008, the Scottish Government launched Scotland’s future is smoke-free, A Smoking Prevention Action Plan in order to reduce the number of smokers across Scotland. Backed by £9 million over three years, the plan includes action to restrict the display of cigarettes and other tobacco products at the point of sale and update statutory controls on the sale of tobacco products.

Alcohol

3.3 While research suggests that moderate alcohol consumption may have some health benefits, excessive alcohol consumption increases the risk of heart disease and stroke because it increases blood pressure, weight and levels of triglycerides in the blood. The Scottish Government has committed an additional £85.3 million over three years to reduce alcohol related harm and in June 2008 published a discussion document Changing Scotland’s Relationship with Alcohol, which provides an opportunity to shape future alcohol policy in Scotland.

Diet and Physical Activity

3.4 In June 2008, the Scottish Government published Healthy Eating, Active Living: An action plan to improve diet, increase physical activity and tackle obesity (2008-2011). This outlined plans to spend over £56 million on diet, physical activity and promoting healthy weight and gave a particular focus to action to support children in their earliest years.

3.5 Individuals with a body mass index (BMI) >30kg/m² have a two to threefold increased risk of CHD and stroke compared to individuals with a normal BMI. Central obesity, as measured by waist circumference, is an even better predictor of cardiovascular risk, with a high risk in men with a waist circumference of over 102cms and in women with a waist circumference of over 88cms. Such risk levels vary between population groups.
3.6 There is clear evidence that regular activity has both preventive and therapeutic effects on both CHD and stroke, as well as many other long-term conditions. Scotland's physical activity strategy sets out to create, improve and maintain the environments that provide opportunities for physical activity to develop; increase and maintain the skills required in the Scottish workforce to support people in becoming more active; raise awareness of the benefits of physical activity throughout the Scottish population; monitor the impact of current activity; and ensure current policy and practice are supported by best available evidence.

Health Promoting Health Service

3.7 In March 2008, the Scottish Government issued guidance (CEL(2008)14) to NHSScotland on the Health Promoting Health Service: Action in Acute Care Settings. This regards all healthcare contacts as health improvement opportunities and describes a series of actions that have the potential to reduce the impact of CHD and stroke:

• brief interventions to support smoking cessation for all patients in maternity units and acute care settings;

• opportunistic screening and brief interventions (in accordance with SIGN 74) to tackle alcohol problems for patients attending A & E departments;

• implementation of the UNICEF Baby Friendly Initiatives Award Scheme in all maternity units;

• increasing access to competitively priced fruit and vegetables through retail outlets in acute settings;

• removing all soft drinks with sugar content >0.5gms per 100mls from vending machines in hospitals; and

• attaining the healthy working lives award.

ISSUES TO CONSIDER

What further actions should we take to encourage healthy choices that can reduce the risk of CHD and stroke and cardiovascular disease more generally?
4. TACKLING HEALTH INEQUALITIES

4.1 Better Health, Better Care emphasises the importance of identifying and prioritising practical actions to reduce the most significant and widening health inequalities in Scotland. Equally Well, the report from the Ministerial Taskforce on Health Inequalities, outlines a range of actions to break the link between early life adversity and adult disease, tackle the big “killer” diseases and support individual behaviours that promote good physical and mental health and wellbeing.

**Mortality**

4.2 There is clear evidence that people living in deprived areas of Scotland are more likely to die from CHD than those in more affluent areas, with the standardised mortality rate in the most deprived tenth of the population being almost five times that in the least deprived tenth. As Figure 7 demonstrates, the relationship between CHD mortality and deprivation occurs at all ages, but is particularly strong in the 0-64 age group.

Figure 7: Coronary Heart Disease Standardised Mortality Ratios males and females by age group and SIMD decile; 2002-2006

4.3 Figure 8 demonstrates increased risk of mortality from stroke amongst the under 65s in the most deprived sections of Scottish society. The same relationship is not seen in those aged 65 or more.
Anticipatory Care

4.4 Better Health, Better Care sets out an increased focus on the concept of “anticipatory care”, the process of shifting from a reactive system of healthcare to one which seeks to anticipate and prevent health problems before they develop. In particular it focuses on:

- identifying people who have established CVD and ensuring a structured approach to risk modification, pharmacological treatment and health behaviour change to prevent further CVD events (secondary prevention); and

- identifying through a formal risk assessment those at high risk of CVD and then ensuring modification of their risk factors through health behaviour change or medical therapy to prevent disease onset (high-risk primary prevention).

Keep Well Programme

4.5 The Keep Well programme provides anticipatory intervention for those at high risk of CHD and diabetes. 45-64 year olds within deprived communities are invited to attend a health check, and those found to be at risk are either referred on to further services/brief interventions or are prescribed appropriate medications.

4.6 The first wave of Keep Well is operating currently in Community Health Partnerships in the Greater Glasgow and Clyde, Lanarkshire, Tayside and Lothian NHS Board areas. A further wave will begin shortly in areas covered by NHS Grampian, NHS Ayrshire and Arran, NHS Fife and NHS Greater Glasgow and Clyde. The programme is supported by £12.5 million per year from the Scottish Government until 2010-2011.
Well North

4.7 The Well North programme is being implemented in the North of Scotland and aims to widen the reach of anticipatory care in remote and rural areas. The programme covers six projects supported by £750,000 from the Scottish Government. It will provide targeted evidence-based interventions for individuals or households of any age at risk of preventable serious ill-health, taking account of the unique dispersion of deprivation in remote and rural Scotland.

Have a Heart Paisley

4.8 Have a Heart Paisley was originally established in 2000 for a three-year period. Phase 2 of the project started in 2004 and focuses on primary and secondary prevention of CHD, together with menu-based cardiac rehabilitation in a community setting. The primary prevention work stream is targeted at a similar (although not identical) age group to Keep Well and offers a risk assessment of CVD for those at high risk, along with health coaching to encourage behaviour change. Key learning from the evaluation of Phase 2 is now available and is being used to inform the development of the anticipatory care model in the Keep Well pilots.

ASSIGN Risk Calculator (SIGN 97)

4.9 ASSIGN, which was developed in Scotland by Professor Hugh Tunstall-Pedoe as part of SIGN Guideline 97, is a new concept in terms of CVD risk calculation. It is based on the Framingham risk score, but includes the two new elements of family history (as a proxy for ethnic background) and a measure of social deprivation (the Scottish Index of Multiple Deprivation). It will enable those at greater than 20% risk of CVD over 10 years to be offered lifestyle interventions and be considered for treatment with statins and aspirin.

4.10 ASSIGN features in the Handbook for Vascular Risk Assessment, Risk Reduction and Risk Management published in March 2008 on behalf of the UK National Screening Committee. The approach set out in the handbook recognises the commonality of risk factors for CHD, stroke, Type 2 diabetes, peripheral vascular disease and chronic kidney disease. ASSIGN is being implemented and assessed initially through GP practices involved in the Keep Well pilots and will then be available throughout Primary Care as a web-based tool. In due course, it is anticipated that ASSIGN will be the preferred CVD risk calculator across Scotland.

ISSUES TO CONSIDER

What further actions should we take to tackle the impact of inequalities on CHD and stroke?
5. SERVICES FOR CHD

5.1 People with heart disease and their families understandably want their healthcare needs to be met as locally as possible. Better Health, Better Care emphasises that resources should be directed to supporting local front-line services wherever possible and that such services should be linked by new technology to specialist centres providing additional support and information where this is required.

Optimal Reperfusion for ST Elevation Acute Coronary Syndrome (ACS)

5.2 Optimal reperfusion therapy depends upon collaborative working between cardiologists, emergency departments and the Scottish Ambulance Service. SIGN Guideline 93 recommends that, where possible, patients with ST elevation ACS should be treated immediately with primary percutaneous coronary intervention (PCI). Where patients are unlikely to receive angioplasty within 90 minutes of diagnosis, they should receive immediate thrombolytic therapy (where appropriate) and then be taken directly to a specialist intervention centre for urgent coronary angiography or emergency rescue angioplasty.

5.3 A study of a hybrid programme of pre-hospital thrombolysis and primary PCI in NHS Lothian has demonstrated very positive results, with a median ECG to primary PCI balloon time of 48 minutes and apparent reductions in deaths and length of hospital stays. The key to this success was the use of pre-hospital decision-making for patients presenting with chest pain via the Scottish Ambulance Service.

Heart Failure Services

5.4 Improved survival rates from acute myocardial infarction and the demographics of an ageing population mean that heart failure is becoming an increasingly prevalent condition, often associated with co-morbidities.

5.5 Ideally a local physician with a special interest in heart failure should be identified in each secondary care setting to lead a heart failure team that manages patients directly, provides specialist advice to other clinical colleagues and acts as the link to regional and national heart failure services. This team should include a lead consultant, cardiology nursing staff, heart failure nurses (working between acute and community settings) and a pharmacist.

5.6 Managed Discharge (from hospital to primary care) is crucial in the management of patients with heart failure and should aim to provide:

- community support, through, for example, community heart failure nurses;
- outpatient multidisciplinary follow up, including pharmacy input;
- regular review of drug treatment to optimise pharmacological interventions;
- patient information, including self-management programmes, in language which can be readily understood; and
- arrangements for appropriate end of life care.
5.7 Recent research by the British Heart Foundation highlighted the value that patients place upon the care received from specialist nurses in heart failure. Having one person with whom they could build up a relationship of trust and understanding noticeably improved their recovery rate and increased their own confidence in being able to cope with their heart condition. The fact that heart failure nurse specialists are often supplementary prescribers, working with medical and pharmacy colleagues to locally agreed medical therapy guidelines, contributes to the observed reductions in hospital admissions in these nurse led services.

5.8 All such services need to link to the exercise programme component of the local cardiac rehabilitation service, and in remote and rural locations the potential for a “generic” cardiovascular nurse to undertake both heart failure and cardiac rehabilitation roles should be considered.

5.9 The palliative care needs of those with advanced heart failure have long been recognised as an area requiring attention. Publication in March 2008 of the report Living and dying with advanced heart failure: a palliative care approach by the Scottish Partnership for Palliative Care and the British Heart Foundation Scotland sets out a range of recommendations for addressing this issue. The creation by the British Heart Foundation and Marie Curie Cancer Care of a centre of excellence in Glasgow, and their investment in research and development for advanced heart failure patients, represents a major contribution.

Cardiac Rehabilitation

5.10 Comprehensive cardiac rehabilitation consists of exercise training together with education and psychological support. It helps patients to return to normal living and encourages them to make lifestyle changes to prevent further cardiac events. It also provides a vehicle for the delivery of enhanced secondary prevention, by treating medical risk factors and delivering optimal medical therapy.

5.11 Until recently, only patients who had had a myocardial infarction or cardiac intervention (angioplasty or bypass graft) had access to cardiac rehabilitation services. It is now clear that patients who undergo other “step changes” in their condition, such as unstable angina, new onset angina or heart failure, will also benefit from cardiac rehabilitation.

5.12 The Scottish Campaign for Cardiac Rehabilitation, led by the British Heart Foundation Scotland and Chest Heart and Stroke Scotland, has highlighted the opportunity to increase participation rates in cardiac rehabilitation from 60% to 80%. This, the campaign suggests, could be achieved by tailoring services to suit individual patient needs and implementing innovative solutions such as evening provision or home-based programmes to draw in under-represented groups such as those from minority ethnic communities, and those in remote and rural and/or deprived communities.
Cardiac Sub-Specialties

5.13 A number of cardiac sub-specialty components need to be delivered through robust regional arrangements to ensure equity of access. These include coronary interventions, device therapy, electrophysiology services, heart failure services and services for inherited cardiac conditions.

5.14 Coronary artery bypass grafting is delivered in three regional centres, which are aligned to interventional cardiology hubs. The establishment of isolated cardiac catheterisation facilities within district general hospitals (DGHs) is not the preferred model for Scotland and existing DGH cath labs must be involved in a wider interventional network at regional level to ensure optimal use of resources. Invasive cardiac investigations should be performed in these regional centres, with DGH cardiologists participating in the service on a sessional basis.

West of Scotland Heart and Lung Centre

5.15 The new West of Scotland Heart and Lung Centre at the Golden Jubilee National Hospital (GJNH) became operational in 2007 and made a significant contribution to meeting the waiting time guarantee in cardiac activity by 31 December 2007. The migration of clinical services from Glasgow and Lanarkshire to the GJNH was completed in spring 2008, making the Centre one of the largest in the UK serving the residents of all six West of Scotland NHS Boards. It also houses three of Scotland’s national services:

- Scottish Advanced Heart Failure Service, including the heart transplant unit;
- Scottish Pulmonary Vascular Unit; and
- Scottish Adult Congenital Cardiac Service, previously known as the Grown-Up Congenital Heart Unit.

The Centre also links to the Glasgow Heart and Lung Institute, the result of a partnership between the NHS in the West of Scotland and the University of Glasgow, including the British Heart Foundation’s Glasgow Cardiovascular Research Centre. The Institute will broaden and strengthen collaboration between clinicians and scientists with the aim of translating research into care as swiftly as possible.

5.16 The Centre offers patients:

- an integrated heart and lung centre with equal access to a wide range of specialist services for all patients in the West of Scotland;
- concentration of expertise, enabling sub-specialisation;
- excellent accommodation and environment in a modern, purpose-built facility;
- access to £4 million of new equipment;
- R & D and academic activity that will lead to innovation and improvements in patient care, building on existing academic links; and
- ongoing service redesign to improve patient care and patient experience.
5.17 Following approval by the West of Scotland Regional Planning Group, an Enhanced Reperfusion service will be implemented across the West of Scotland in 2008. Patients with ST elevation ACS will be brought by the Scottish Ambulance Service directly to either GJNH or Hairmyres Hospital for primary PCI, if they are within the agreed travel time. Patients outwith the agreed travel time will receive thrombolysis (where appropriate) prior to being brought to the intervention centre for follow-up care.

National Centre for the Treatment of Advanced Heart Failure

5.18 The national CHD and Stroke Strategy Update published in 2004 allocated £450,000 to establish a National Centre for the treatment of advanced heart failure.

5.19 The National Centre is a nationally designated service which includes the Scottish Heart Transplant Unit. Falling donor rates and the development of new medical technologies such as cardiac resynchronisation therapy (CRT) for the management of chronic heart failure mean that the historical patterns of patient referral and care to the Scottish Heart Transplant Unit are changing. Heart transplantation is increasingly seen as one of a range of treatment options.

5.20 The National Centre will improve patient management in this area by:

- updating and educating professional and management colleagues throughout NHSScotland about the new service;
- acting as a tertiary source of advice to clinical colleagues at regional and local level;
- addressing the unmet needs of heart failure patients;
- establishing appropriate "rescue" services for acute severe heart failure;
- promoting the role of non-transplant cardiac surgery in heart failure patients; and
- working synergistically with the nationally designated Scottish Adult Congenital Cardiac Service and Scottish Pulmonary Vascular Unit.

Familial Arrhythmia Network Scotland

5.21 A national Managed Clinical Network, the “Familial Arrhythmia Network Scotland” (FANS) is being developed to raise awareness of familial arrhythmias, define and agree referral protocols, develop national guidelines for clinical and genetic testing and establish a national register. The register will support long term follow-up, including testing for the late onset of a condition, administration of new therapies and scope for identifying new genes and genetic tests as they become available.
5.22 FANS is only a partial solution to problems associated with sudden cardiac death, in that it addresses deaths related to arrhythmias but not those related to abnormalities such as hypertrophic cardiomyopathy. The aim therefore is to develop a parallel Network for cardiomyopathies. The third element of this Network approach is to promote links with the existing Scottish Muscle Network, which covers cardiac problems related to inherited neuro-muscular conditions such as myotonic dystrophy or Duchenne Muscular Dystrophy. In the course of time, these Networks will be merged into a fully multidisciplinary specialist Network covering all inherited cardiac conditions.

Heart Screening for Amateur Athletes

5.23 The Cabinet Secretary for Health and Wellbeing announced recently the Scottish Government’s intention to work with the Scottish Football Association to establish a pilot programme that will provide, for the first time, a free heart screening service for amateur athletes in Scotland. The pilot programme will be based at the sports medicine centre at Hampden stadium and will include collaboration with Dundee University. Funding of around £100,000 has been identified from within existing resources to support this research project.

ISSUES TO CONSIDER

What further actions should we take to improve the range and quality of CHD services in Scotland and how should these actions be prioritised?
6. STROKE SERVICES

6.1 Stroke services, shaped by the local Managed Clinical Networks, aim to provide evidence based and high quality, patient centred care at all points in the patient pathway – from identification and treatment of a transient ischaemic attack (TIA) to prevent a stroke, through to the long term support of stroke survivors with complex needs (and their carers) in the community.

Local Services

6.2 Stroke and TIAs are sufficiently common that most stroke services can and should be provided locally. This makes both early access to specialist care and discharge from secondary care back to the community easier.

6.3 About one-fifth of patients who suffer a stroke will have had warning symptoms (TIAs) in the days or weeks before the onset of a stroke. This offers a unique opportunity to prevent a disabling or even fatal stroke using interventions such as anti-platelet drugs, anticoagulants, cholesterol and blood pressure lowering medication. For every 100 patients treated with this combination in the first day after a TIA or minor stroke one might expect to prevent 5-10 strokes. In some patients, surgery on the carotid artery will further reduce the risk of subsequent stroke.

6.4 Daily TIA clinics and TIA hotlines provide two potential service models which offer the necessary immediate access to clinical assessment and treatments to reduce the risk of future stroke. However; many patients and relatives are unaware of the early warning symptoms of stroke and will therefore stand to benefit from the public awareness campaign being run by Chest, Heart and Stroke Scotland which promotes the Facial, Arm, Speech Test (FAST).

Stroke Unit Care

6.5 Stroke unit care improves outcomes. For every 100 patients admitted to a stroke unit, about five additional patients will survive to leave hospital free of significant disability. In the six years since the publication of the original strategy, access to stroke unit care has improved greatly. In 2002, there were 31 stroke units and 583 stroke unit beds in Scotland and by 2005, this had increased to 46 units, with a total of 789 designated stroke beds. In 2007, 77% of stroke patients in Scotland were managed in stroke units.

6.6 Despite these successes, however, it remains the case that many hospitals are not yet meeting the standard developed by NHS Quality Improvement Scotland (NHS QIS), that would see at least 70% of patients with stroke admitted to a stroke unit within the first day. In some areas, this target will require a further increase in the number of stroke unit beds, while in others, the solution lies in collaborative action to reduce delays in accessing investigations, assessments by Allied Health Professionals (AHPs), early supported discharge and the wider use of community-based rehabilitation services and nursing home beds.
6.7 Achieving NHS QIS standards across Scotland will also require action to meet current difficulties in attracting and retaining appropriately trained staff. The relatively recent recognition of stroke medicine as a sub-specialty for medical training purposes, and the establishment of specialty registrar posts, should help to address current shortages of stroke specialists. A recent survey of medical manpower has, however, identified a shortfall in the number of consultant programmed activities (PAs) to deliver comprehensive stroke services in most NHS Boards. There are also difficulties in meeting staffing requirements for specialist nursing and AHP staff and action is required to provide higher level specialist training for nurses and increase the range of opportunities for all staff to gain the knowledge and skills required in stroke care. This is particularly important if services such as the triaging of patients in Accident and Emergency centres for possible thrombolytic (“clot dissolving”) therapy are to be developed, as this will require the development of more skilled ward nursing staff who can leave their ward base to do this, without compromising the care of patients already on the ward.

Early Supported Discharge

6.8 Patients should only stay in a stroke unit bed as long as they really need it and can benefit from it. There is now reliable evidence from clinical trials that “early supported discharge” from stroke units can achieve not only shorter lengths of stay, but also better clinical outcomes for stroke patients. Currently, access to specialist stroke rehabilitation services for patients outside hospital is patchy and there is a role for Community Health Partnerships to work with Managed Clinical Networks and specialists in secondary care to increase the availability of such services.

Stroke Liaison Nurses

6.9 Leaving hospital can be very stressful for patients and their families, many of whom lack confidence and require information, psychological support and practical advice to help them deal effectively with the consequences of stroke and reduce the risks of further strokes and heart attacks. Many stroke services have employed specialist liaison nurses who meet patients and their families prior to hospital discharge and then follow them up in their own homes during the months after discharge. Patients and their families find these services enormously beneficial and such approaches should continue to be developed either directly or in collaboration with the third sector.

Long Term Services for Stroke

6.10 About a third of people who have a stroke will be faced with adapting to a life with a long-term disability. The effects of a stroke are wide ranging and can include physical and mental health problems which have a profound impact on the everyday activities of the affected individual, their family and carers.
6.11 Health, social care services, the voluntary sector, individuals and carers need to work together to develop good quality, innovative long-term solutions to stroke, which reflect the shared principles of the Delivery Framework for Adult Rehabilitation in Scotland and other key statements of Scottish Government policy. These offer the potential to deliver services which suit the needs of individuals at all stages of the recovery process, particularly following discharge from hospital. Coordinated community care via MCNs will provide the necessary multi-agency approach to create robust local support networks for stroke survivors. The provision of information in a wide variety of formats suitable for people with cognitive and communication difficulties should be a key aim of such networks.

**Thrombolysis**

6.12 As with TIAs, patients experiencing symptoms of stroke need to seek immediate medical advice and get rapid access to services at local or regional level. This is particularly important if treatment with thrombolytic drugs is being considered, because these need to be given within three hours of first symptom onset, with even greater benefits if the treatment is given in the first hour or two. For every 100 patients treated with early thrombolysis, one would expect that 10 to 20 would avoid long term disability. This requires joint planning and collaboration between primary care, NHS 24, the Scottish Ambulance Service and Emergency Admission Units.

6.13 Despite reliable evidence from randomised controlled trials supporting its effectiveness, fewer patients in the UK receive thrombolysis for stroke than in most countries in Western Europe.

6.14 The safe delivery of thrombolysis requires the patient to be assessed by an experienced clinician and to have access to an immediate brain scan. Specialist on-site cover is not available 24/7 in every hospital that admits acute stroke patients and therefore two complementary models of collaborative working are developing across Scotland. The first relies on early recognition of suitable patients by GPs and paramedics and diversion of the patient to the nearest appropriate centre with the necessary staffing and facilities. The second involves patients going to the nearest hospital with a brain scanner and stroke unit, with specialist assessment provided remotely via a telemedicine link when necessary.

**Scottish Hyper-acute Stroke Assessment and treatment (Rx) Evaluation – (SHARE)**

6.15 The development of hyper-acute stroke care is a priority for future stroke service development. Currently, the information on hyper-acute stroke care treatment until thrombolysis is collated in a variety of different ways. The SHARE project is therefore designed to allow a more consistent approach to the monitoring and evaluation of hyper-acute stroke services in Scotland. It will comprise a national registry of treated patients which will enable it to monitor whether this treatment is provided equitably and
safely across Scotland. It is anticipated that this will eventually form part of the Scottish Stroke Care Audit.

6.16 To improve access and equity, thrombolysis services will need to be planned on a regional basis. This will require the development of regional on-call rotas for stroke specialists and the introduction of telemedicine networks to reduce delays to treatment and avoid prolonged journeys in ambulances.

6.17 Some patients with stroke may benefit from a number of other specific interventions (e.g. decompressive craniectomy, evacuation of haematomas, intra-arterial thrombolysis, management of arteriovenous malformations, clot pulling and stenting). These require a neurosurgical or interventional neuroradiological team (comprising neurosurgeons, radiologists, anaesthetists and intensivists) and can therefore only be provided in regional centres. MCNs need to develop referral criteria and pathways to ensure patients have access to these interventions when needed. The regional telemedicine networks should also help coordinate the transfer of small numbers of patients to a regional centre for these more specialist treatments.

**Carotid Surgery**

6.18 About 500 patients each year undergo carotid endarterectomy to treat narrowing of their carotid artery and reduce the risk of subsequent stroke. If this operation is performed within a week or two of a TIA or minor stroke, there is very good evidence that major stroke can be prevented. If operated on within this period, one would expect to avoid at least 20 strokes for every 100 patients treated. Currently most operations in Scotland are not done within the optimal waiting time of 14 days described in the SIGN guideline, so that some potentially avoidable strokes are not prevented and the effectiveness of the surgery is reduced.

6.19 The patient pathway to carotid surgery needs to be greatly speeded up. This will reduce delays in:
- patients seeking medical help;
- access to specialist assessment and appropriate investigation;
- referral to surgeon;
- assessment by surgeon; and
- time to surgery.

**ISSUES TO CONSIDER**

What further actions should we take to improve the range and quality of stroke services in Scotland and how should these actions be prioritised?
7. IMPROVING THE EXPERIENCE OF CARE

7.1  *Better Health, Better Care* makes clear NHSScotland's determination to provide patient-centred care which is respectful, compassionate and responsive to individual patient preferences, needs and values. It sets out plans for a new programme of work, *Better Together*, which listens to the experiences of patients in Scotland and uses this understanding to drive changes in the way in which services are designed and delivered. The initial focus of this programme is on inpatient care, GP services and long term conditions and will therefore provide a series of opportunities to improve the experiences of cardiovascular patients.

7.2  Patient Focus and Public Involvement initiatives have made good progress in involving patients, carers and local communities in the design and delivery of cardiovascular services. “HeartyVoices” Scotland training provided by Chest, Heart and Stroke Scotland and the British Heart Foundation Scotland has supported this involvement by providing the skills and increasing the confidence of cardiac patients and their carers to enable them to work effectively with health professionals to influence change.

Self Management

7.3  Self management is a person-centred approach to care, in which the individual is empowered and has ownership over the management of their life and condition. The role of health and social care professionals, services and treatments is to support patients and their carers to continue “normal life”, while managing their condition.

7.4  The forthcoming publication of the self management strategy developed by the Long Term Conditions Alliance Scotland provides an opportunity for NHS Boards, social care and the third sector to work together in a new partnership to support patients, their families and their carers in managing their cardiovascular conditions. In particular, it will focus on supporting innovative self management projects across Scotland, identifying and realising the benefits of new technology in delivering care closer to home and improving the information that is available at all stages of the patient’s journey.

7.5  Research by the British Heart Foundation highlighted a number of weaknesses in communication within the medical profession. This reported that patients perceived care to be overly compartmentalised and that a lack of effective communication between GPs and hospital consultants left them feeling abandoned after discharge from hospital. Managed Clinical Networks are well placed to address such concerns and will need to prioritise actions in this area.

7.6  The cardiac and stroke Managed Clinical Networks can be made even more effective as agencies for local implementation of the Strategy through the participation of “lay” representatives who have received proper training both in their condition and in the workings of the NHS. The Scottish Government has provided funding to allow for the extension of the “HeartyVoices” programme, to help those who have had a stroke who wish to participate in the work of their local stroke MCN.
Waiting Times

7.7 Patients want investigation and treatment to be undertaken as rapidly as possible. Since December 2004, the Scottish Government’s waiting time standards for CHD have meant that patients have waited no longer than eight weeks between a review by a heart specialist and access to diagnostic angiography and, if required, no more than 18 weeks between angiography and cardiac revascularisation. A new target was introduced from December 2007, with a maximum waiting time of 16 weeks to treatment following referral by a GP. This target is sub-divided into time specific stages with a maximum waiting time of one or two weeks (depending on the hospital) for assessment at a rapid access chest pain clinic, a maximum wait of four or five weeks for angiography/follow-on revascularisation and a maximum wait of 10 weeks for revascularisation or valve surgery.

7.8 Better Health, Better Care included the commitment that from 2011 there will be a maximum waiting time of 18 weeks from referral to treatment for all conditions, including CHD and stroke. To begin the move towards achieving this new target, the maximum routine waiting time for cardiac outpatient clinics has been set at 18 weeks from December 2007, reducing to 15 weeks or less at March 2009.

7.9 At present, there are no specific waiting time targets relating to stroke services, but standards produced by NHS QIS define the maximum delays patients should experience in line with best clinical practice. Data from the Scottish Stroke Care Audit shows that, averaged over Scotland, the proportion of patients receiving care in line with NHS QIS standards has increased significantly between 2005 and 2007 and meets the standard with respect to early access to brain imaging. However, there remains scope for continued improvement.

Clinical Guidelines

7.10 NHS Quality Improvement Scotland is currently establishing a structured programme of work that pulls together a range of initiatives that support the implementation of clinical guidelines for CHD and stroke across Scotland. This includes:

- work by a cardiovascular programme board to raise awareness of and implement the five clinical guidelines published by SIGN in 2007 on the prevention and management of coronary heart disease and cardiovascular disease;
- the development of a SIGN guideline on Management of patients with stroke or TIA: assessment, investigation, immediate management and secondary prevention;
- a patient version of the new guideline in collaboration with Chest, Heart and Stroke Scotland; and
- a selective update of SIGN 64: Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning which will begin in September 2008.
Clinical Standards

7.11 A standards development programme for cardiovascular disease is being established, using the evidence in the SIGN guidelines as a framework, in collaboration with a wide range of stakeholders including MCNs and patient representatives.

7.12 NHS QIS first developed stroke standards in 2004, covering the care of the patient in the acute setting. Peer review visits to all NHS Board areas in Scotland were conducted between September 2004 and May 2005 in order to assess performance against the standards. The standards are likely to be revisited and revised in light of the action to update SIGN guidelines detailed above.

National Audits

7.13 National audits will be undertaken during 2008-2009 in relation to heart failure, acute coronary syndromes and cardiac rehabilitation. The National Advisory Committee for CHD’s Data and IT Sub-Group has established a working group to update and agree a set of standardised definitions around cardiac rehabilitation and to define an appropriate cardiac rehabilitation participation rate for Scotland.

7.14 The Scottish Stroke Care Audit monitors the quality of care provided by NHS Boards by collating data collected by the MCNs which are used centrally to monitor progress against the current standards for stroke. A steering committee has been set up to conduct a nationwide, prospective, population-based register of intracranial vascular malformations: the Scottish Audit of Intracranial Vascular Malformations. The results will help with treatment decisions for this group of patients.

7.15 To meet the gap in trained staff several NHS Boards have, in collaboration with CHSS, developed stroke in-service training programmes. These are now widespread and highly valued and are being supplemented through the development of web based training which individual staff can access at a time which is convenient to both themselves and the service. They include on-line training in swallowing assessment (available through the e-library) and an on-line training resource focusing on the Stroke Core Competencies developed by NHS Education Scotland (NES) described below.

7.16 NHS Education for Scotland published a set of core competencies for professionals working with people with stroke in April 2005. An e-learning training resource based on the competencies has been developed subsequently by a range of stakeholders including CHSS, the University of Edinburgh, NES and a national steering group which includes expert stroke clinicians. A supporting website www.Strokecorecompetencies.org which was launched in May 2008, provides a multidisciplinary resource which focuses on a wide range of core knowledge and skills required by all staff delivering stroke care. It is now being developed further with more advanced training resources aimed specifically at staff working in acute stroke unit care.
7.17 Exercise After Stroke: Physical Activity and Health is a unique training course designed for specialist exercise instructors which has been developed and validated by Queen Margaret University. The modular course is based around the most up-to-date and highest quality evidence available, and involves 200 hours of study comprising lectures, tutorials, practical sessions and self-directed learning. Representatives of the leisure industry in the participating NHS Board areas are working in partnership with health colleagues to establish patient pathways into exercise and fitness training to maximise recovery for people who have had a stroke.

Practice Development

7.18 The Practice Development Unit (PDU) of NHS QIS will undertake a scoping exercise to identify how it can contribute to the improvement of practice and services offered by AHPs to patients who have aphasia following stroke. The Unit will also hold a stroke master class to disseminate information from a number of stroke related projects undertaken by PDU over the last year, including dysphagia, aphasia and ankle foot orthosis.

Research

7.19 The Scottish Stroke Research Network (SSRN) is funded by the Chief Scientist Office and was set up to complement developments in the rest of the UK. It works through a devolved four regional structure and has 21 active research sites, with plans to develop a further three to four sites. Recruitment to trials has risen in 2007-2008 by 50% over the previous two years. Scotland is currently the second highest recruiting region in the UK (with over 500 participants per year) despite having a relatively more demanding portfolio of studies. The Network will continue to consolidate and build upon this progress and begin focusing on supporting activities such as development of the study portfolio, staff training, and service development.

ISSUES TO CONSIDER

What further actions should we take to improve the patient experience of care for both CHD and stroke?
8. IT INFRASTRUCTURE

8.1 The Scottish Government has recently issued a new e-Health Strategy covering the period 2008-2011. The Strategy outlines how e-Health can support the overall goals for NHSScotland highlighted in Better Health, Better Care. It adopts an incremental and pragmatic approach to developing e-Health solutions.

CHD Developments

8.2 The CHD National Advisory Committee’s Data and IT Sub-Group is developing processes to ensure comprehensive and accurate collection and collation of information related to the care of patients with CHD across Scotland. This work also encompasses plans to ensure timely dissemination of the information to key stakeholders at planning, managerial and clinical levels within NHSScotland.

8.3 A culture of data collection and reporting is being developed and strongly encouraged throughout secondary care using information from established databases for cardiac surgery, PCI and the more recently implemented acute coronary syndrome register (SCI-CHD-ACS). While specific CHD data officers are key to this process, clinicians and other CHD staff have been directly involved in agreeing quarterly reports of data which reflect activity and, more importantly, the quality of care being delivered in each centre. These reports will be available more widely within the next 6 months with plans to post them on the forthcoming “HeartScotland” website. Plans to improve the accuracy and consistency of CHD data recorded using the SMR01 system are being linked to this process. A further project linked to this is being developed with NHS QIS and SIGN to address issues of implementation of guidelines and processes which can regularly assess quality of clinical care.

8.4 A large body of work has been completed with the National Clinical Datasets Development Programme (NCDDDP) hosted by Information Services Division (ISD), to develop and agree a comprehensive dictionary of data items for patients with CHD. Datasets are now available for heart failure, pacing and electrophysiology, cardiac rehabilitation, core cardiac information and acute coronary syndromes and are currently being developed for chest pain clinics, cardiac catheterisation/angioplasty and cardiac surgery.

8.5 Work is now taking place to develop a high level specification document for an electronic patient record which aligns with the national e-Health agenda. This is a large and extremely important piece of work which aims to build, in a modular fashion, a comprehensive clinical electronic record for patients with CHD managed within secondary care. The system will be developed using a nationally agreed IT platform and will conform strictly to e-Health IT governance. A pilot development for this project is being taken forward in Glasgow for heart failure using local IT infrastructures overseen by the National Advisory Committee’s Data and IT Sub-Group.
8.6 A number of benefits have already been identified within the project and include enhanced patient safety and clinical effectiveness, as well as improved service planning and delivery. In order to shape the programme so that it is clinically relevant and appropriate, meaningful clinical engagement will continue to be a key priority.

**Stroke Developments**

8.7 Several strands of work have been proceeding in the area of stroke e-Health, which have already brought minor improvements in patient care but which promise to yield important benefits over the next five years.

8.8 As in the case of CHD, the NCDDP has developed agreed clinical terms which can be used in clinical information systems. The clinical stroke community has worked with the NCDDP to produce several datasets including those relating to inpatient care, outpatient care, nursing and allied health professionals (AHPs). This work is an essential step in introducing electronic patient records (EPR) to stroke services.

8.9 Several stroke MCNs have developed and implemented EPRs to support their stroke services. However, although these local EPR systems work well in the services which developed them, there are significant hurdles to rolling them out across the country, including the fact that they do not currently communicate with each other, or other local IT systems such as labs and radiology. Clinicians and IT developers are working across NHS Boards to take the best ideas from existing systems and build systems which can be rolled out to any stroke service. These systems will be developed using a nationally agreed IT platform and will conform strictly to e-Health IT governance. Over the next five years the roll-out of EPRs across Scotland should bring about real improvements in stroke patient care by:

- allowing clinicians to collect and share information about patients;
- producing legible typed reports for medical notes and communication between hospital and community services;
- prompting clinicians to collect appropriate information;
- providing clinicians with decision support tools (e.g., systems to predict patients’ outcomes or to recommend certain investigations or treatments); and
- capturing data to enable clinicians to monitor the performance of their services.
8.10 The Scottish Government is also rolling out the national Picture Archiving and Communications Systems (PACS) initiative to all hospitals in Scotland. In the past, patients’ X-rays were printed onto expensive film. Digital radiography means that the pictures from plain X-rays and scans are now captured digitally and can be stored on computers. This will allow doctors from across Scotland to see X-rays of their patients, even if these images were taken at another hospital. PACS brings particular benefits for stroke patients, where doctors are very reliant on brain scans to make an accurate diagnosis.

8.11 The system will enable clinicians to get a specialist opinion on the scan very rapidly from another expert working in a different hospital, with obvious clinical benefits.

8.12 Telemedicine in the form of videoconferencing is also being used in stroke medicine to allow patients to receive earlier, and therefore more effective, thrombolysis at their local hospital, even when a local stroke specialist is not available. A stroke specialist in another hospital will be able to check the diagnosis, review the brain scan (using PACS) and recommend the best treatment. The Scottish Centre for Telehealth (SCT) is working closely with the Stroke MCNs to introduce telemedicine networks throughout Scotland.

ISSUES TO CONSIDER

What further actions should we take to develop the IT infrastructure that is needed to support CHD and stroke services?
9. DEVELOPING AN ACTION PLAN FOR SCOTLAND

9.1 This consultation document aims to stimulate discussion about priorities for NHSScotland and its partners in developing its future approach to CHD and stroke care. We invite you to take part in that discussion by commenting on the approaches described in this document, identifying other opportunities and, in particular, by describing the actions that you would like to see prioritised over the next few years. We would also welcome information on your personal experiences of care and examples of best practice from Scotland or elsewhere in the world. These will be reflected in the final strategy due to be published later this year.

How to Get Involved

9.2 You can get involved in this consultation in a number of ways:

1. By completing and returning the enclosed feedback form. This is also available on-line at http://www.scotland.gov.uk/Topics/Health/health/chdstroke, where you may either complete it on-line or download it and return a completed form by post.
2. By participating in one of the discussion events that are planned over the next few months, details of which are listed on the website mentioned above.
3. By e-mailing us at: betterchdandstrokecare@scotland.gsi.gov.uk

9.3 This document can be viewed at Scottish Health on the web at: www.show.scot.nhs.uk. You can telephone Freephone 0800 77 1234 to find the location of your nearest public internet access point.

9.4 If you ask for your response not to be published, we will regard it as confidential and we will treat it accordingly. You should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

What Happens Next

9.5 We will consider all responses and views received by the closing date of 24 October 2008 and publish the final strategy and action plan later in 2008.

Comments and Complaints

9.6 If you have any comments about how this consultation exercise has been conducted, please send them to:
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