

Country report United Kingdom – April 2015



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I. Structure of Health care in the United Kingdom

The United Kingdom of Great Britain and Northern Ireland (commonly known as "the United Kingdom", "the UK", or simply "Britain") is composed of four countries: England, Scotland, Wales and Northern Ireland. The UK is a constitutional monarchy governed by Parliament, and with some aspects of administration devolved to the nations of Scotland, Wales and Northern Ireland.

Health care in the UK is delivered by a National Health Service (NHS) run as four different, publically funded systems in the constituent countries of the UK: the National Health Service (England), NHS Scotland, NHS Wales, and Health and Social Care in Northern Ireland. The NHS across all four countries of the UK provides universal coverage for all people resident in the UK.

Life expectancy at birth varies across the UK; it is a mean of 81 years (79 years for men and 83 years for women), which is slightly above the OECD average. However, this masks a 10 year differential for men and an 8 year differential for women when looking at the highest and lowest life expectancies in regions across the UK.

In England, health care is commissioned from hospitals, community based services and primary care by clinical commissioning groups – which are run by general practitioners, and which is governed by NHS England. In the devolved nations, health care spending priorities are decided by health boards or health trusts under the governance of NHS departments in those countries. Health care records are computerised in the main, with data from hospital care downloaded to the national Health and Social Care Information Centre (HSCIC). From August 2014 GP and community service data is being added to hospital data available at HSCIC to enable more detailed planning of health and care services. These data will enable full assessment of risk factor prevalence and primary and secondary prevention activities, in addition to data about mortality, morbidity and treatments provided for hospitalised people with cardiovascular disease.

Mortality from coronary heart disease has continued to fall in the UK over the last decade, from 105,842 deaths in 2004 to 73,680 in 2012, however CVD still accounts for a third of all deaths in the UK. Responsibility for primary and secondary prevention lies with the Department of Health within the UK government, which has initiated strategies to improve prevention and care of people with, or at high risk, of developing cardiovascular disease, through the publication of the *Cardiovascular Disease Outcomes*

Strategy in 2013. The devolved countries have also targeted CVD in a number of initiatives recently: Scotland in the "Heart Disease Improvement Plan 2014", Wales in "Together for Health- a Heart Disease Delivery Plan 2014", and Northern Ireland in the "NI Service Framework for Cardiovascular Health and Wellbeing 2009 – updated 2014". These various initiatives demonstrate that prevention of CVD is a priority within the UK.

There are a total of 1,066 (2012 figures) cardiologists in the UK, who are NHS employees in the main. Access to cardiologists (and other specialists) is via general practice or through acute admission to hospital.

Finances

The NHS is publically funded through general taxation and covers hospital, community and primary care. The government funds 84% of all health care in the UK, the remainder is funded through a mix of personal out-of-pocket expenses, charitable funds or private insurance. The latter only funds 3% of healthcare in the UK. The total spending on health care is 9.4% GDP which equals almost €2,500 per person per year. Dental care and pharmaceuticals are partly covered by NHS funding, with medication free for children and people over the age of 60. While there is an increase in the use of private health companies to deliver NHS services, all political parties within the UK continue to advocate that the NHS is funded publically and is free to all eligible people at the point of care. Treatment of circulatory disorders accounted for 7% of the total NHS budget in 2010-11

The main programmes of cardiac rehabilitation are covered within NHS funding, as are some primary prevention strategies and interventions, including nutritional, smoking and physical activity counselling which is provided free at the point of care and which are also provided by Public Health departments in Local Government Authorities. Long term cardiac rehabilitation (after the main programme) is often self-funded (usually a small weekly fee) and is largely run within community health or leisure services.

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II. Risk factor statistics

Table 1: Age-standardised death rates per 100,000 of the population, 2010/12

ALL AGES	Men	Women	Combined
All CVD	358.19	246.37	296.36
CHD	189.90	93.90	135.60
Stroke	78.57	77.05	78.44
UNDER 75			
All CVD	109.18	48.68	77.98
CHD	66.67	21.06	43.15
Stroke	16.66	12.48	14.50

Source: British Heart Foundation Cardiovascular Disease Statistics 2014

Similar to most other developed, western economies, mortality from CVD has been falling since the mid 1980's and in 2012 (for the first time since 1961), CVD was displaced (by cancers) from first to second main cause of death in the UK. Nevertheless, CVD remained the leading cause of death in UK women (28% of all deaths) and CHD by itself was the biggest single cause of death in both men (16% / 42,819 deaths) and women (10% / 30,861 deaths) in 2012. Within the UK, Scotland has the highest age-standardised mortality from all forms of CVD (347.31 per 100,000) and England the lowest (240.16 per 100,000). A significant north/south divide persists in England with northern regions demonstrating 10-20% higher CVD mortality compared to England's southern most regions.

PCI (Percutaneous Coronary Intervention) facilities:

For year end 2013, there were 117 "PCI-capable" centres in the UK – 84 NHS centres in England (population, 53.9 million); 6 NHS centres in Scotland (population, 5.3 million); 4 NHS centres in Wales (population, 3.1 million) and 4 NHS centres in Northern Ireland (population, 1.8 million). A further 19 PCI centres (mainly in England) provided services only to private patients (private medical insurance or self-pay). This equates to 1.8 PCI centres per million population in the UK.

Source: British Cardiovascular Intervention Society audit returns 2013 (bcis.org.uk)

Main CVD Risk Factors

Table 2: Prevalence of principal CVD risk factors (2011/2012 data) – UK figures unless otherwise stated

	Men	Women	Comments
Obesity	13.2 % in 1993 to 24.4% in 2012	16.4% in 1993 to 25.1% in 2012	18.9% of children aged 10-11 obese in 2012
Physical activity	67% met recommendations	55% met recommendations	150 mins moderate intensity per week
Cigarette smoking	51% in 1974 to 21% in 2011	41% in 1974 to 19% in 2011	Decline in children smoking
Hypertension	31% (England)	27% (England)	Significant numbers undiagnosed
Diabetes Mellitus	2.9% in 1994 to 6.7% in 2012 (England)	1.9% in 1994 to 4.9% in 2012 (England)	Approx 850,000 as yet undiagnosed in UK
Total cholesterol*	14% below 4mmol/L (England)	12% below 4mmol/L (England)	England average of 5.1 mmol/L (men)

*Patients with CVD, Diabetes or Hypertension. No target level for patients without these conditions

Source: Health & Social Care Information Centre: Statistics on Obesity, Physical Activity & Diet. 2014
British Heart Foundation Cardiovascular Disease Statistics 2014

The prevalence of both medical and life-style CVD risk factors exhibit a similar pattern of distribution to that of CVD mortality – both between the individual countries comprising the United Kingdom and within England itself. This distribution also correlates with measures of social deprivation, economic prosperity and ethnic diversity. It is recognised that the current prevalence figures for hypertension and diabetes are gross under-estimates. A national (England only) vascular health check programme is under way to attempt to address this issue and evaluation of the impact of this public health measure will be undertaken in due course.

It is important to note that although physical activity data appear impressive, these data are based on self-reported activity levels. A sub-study of questionnaire respondents underwent an objective measure of activity levels using an accelerometer – only 6% of men and 4% of women achieved the physical activity recommendations. In addition, data from the survey as a whole demonstrated that more than 50% of men and women spent four or more hours in sedentary time per weekday.

Household purchases of fresh and processed vegetables (excluding potatoes) have shown no clear trend since 2009, but have generally been declining since 2005, with a 6.1% fall from 1,156g to 1,086g average weekly consumption per person. This has mainly been due to a decrease in purchases of fresh vegetables, which account for roughly 70% of all vegetable purchases. Household purchases of fruit show a similar profile to vegetables. Although there is no statistically significant trend since 2009, purchases have been falling

since 2006 and are 16% down from that peak, at 1,107g per person per week on average.

Adults aged 19 to 64 years on average consumed 4.1 portions of fruit and vegetables per day (including the contribution from composite dishes) and older adults (i.e. those aged 65 years and over) 4.4 portions. 31% of adults and 37% of older adults met the "5-a-day" recommendation. Mean consumption of oily fish was well below the recommended one portion (140g) per week in all age groups. For example, mean consumption in adults aged 19 to 64 years was equivalent to 54g per week.

Drinking behaviour among adults and children

Between 2005 and 2012 the proportion of men who drank alcohol in the week before being interviewed for the survey fell from 72 per cent to 64 per cent, and the proportion of women fell from 57 per cent to 52 per cent in Great Britain.

Among adults who had drunk alcohol in the week prior to the survey, 55 per cent of men and 53 per cent of women drank more than the recommended daily amounts, including 31 per cent of men and 24 per cent of women who drank more than twice the recommended amounts in 2012.

In real terms, between 2009 and 2012 household spending on alcoholic drinks in the UK increased by 1.3 per cent, whilst that bought for consumption outside the home fell by 9.8 per cent.

In 2012, 43 per cent of school pupils (aged 11-15) said that they had drunk alcohol at least once. This continues the downward trend since 2003, when 61 per cent of pupils had drunk alcohol.

III. Main actors and Prevention methods

Prevention Personnel

Cardiologists, GPs and public health clinicians will often take overall responsibility for the effective delivery of CVD preventive interventions and are also likely to be instrumental in the development of preventive strategies and guidelines. However, the actual delivery of preventive healthcare is mostly undertaken by community/practice-based nurses, specialists within dedicated cardiovascular rehabilitation teams (nurses, physiotherapists, exercise professionals, dieticians, psychologists) and, to a lesser extent, community pharmacists. A consultant cardiologist is linked to most, if not all cardiac rehabilitation programmes, but only a small minority are actively practising preventive cardiology as their main clinical role.

Location / Organisations

For patients who have undergone planned or emergency CVD intervention then the initial phases of prevention/rehabilitation will be delivered by specialist nurses at the bed-side. Once discharged from hospital, the traditional model of CVD rehabilitation & prevention has been via hospital-based services. However, community-based services, utilising public gyms and sports halls are becoming increasingly popular. Home-based prevention and rehabilitation is also offered by many teams using validated tools such as the "Heart Manual" and one or two providers have developed web-based applications for delivering prevention/rehabilitation "remotely". Central government provides guidance and runs national campaigns that are concerned with more general public health messages. A specific CVD prevention campaign is currently underway – the national vascular health check programme. Public health funding has been devolved to local authority level with a national advisory/executive agency – Public Health England – established to support all public health initiatives. Charities, in particular, the British Heart Foundation, have CVD prevention as a key strategic goal and provide education for health care providers, patients and the general public. GPs and GP practices are incentivised to assess CVD risk for all patients and to hold validated registers of patients with established CVD (CVD risk factors) and offer annual review.

Guidelines & Education

Principal guidance comes from the National Institute for Health and Care Excellence (NICE) as well as British professional associations such as BACPR and the British Cardiovascular Society. European and North American published guidelines and statements are integral to the development of UK specific documents. Provider organisations such as acute hospitals and general practices are required to demonstrate compliance with NICE clinical guidelines and national societies provide regional and national educational meetings during which CVD prevention strategies, initiatives and assessment tools are presented.

Audit & Quality Assurance

The National Audit of Cardiac Rehabilitation provides annual, comprehensive data concerning various performance indicators for all cardiac rehabilitation services in England, Wales and Northern Ireland. Risk factor profiles can be monitored at national,

regional and local levels and in conjunction with other metrics, used as quality indicators to inform commissioning (funding) decisions. BACPR is currently working towards a UK-wide accreditation programme for cardiac rehabilitation providers which would provide an assurance to commissioners and patients that agreed standards are being met.

GPs are incentivised to implement and record prevention programmes through the Quality & Outcomes Framework (QoF) – part of the GP contract in England since 2004. Patients are coded according to the presence of CVD risk factors (as well as other CVD outcomes including hospital admissions) and electronic returns to the Health & Social Care Information Centre are made annually. The King's Fund produced an independent report which examined the impact of QoF in 2011 (*The Impact of Quality & Outcomes Framework in Health Inequalities*). The main finding was that (QoF) has incentivised general practices to have a more organised approach to chronic disease management, and provides a strong incentive to engage in secondary prevention. However, it has not given general practices incentives to undertake primary prevention and public health activities. The structure and financial incentives attached to QoF are reviewed annually and attempts are being made to address these issues with further evaluation of the impact of QoF to be undertaken in due course.

IV. Main Prevention activities

Campaigns

The UK has a large number of campaigns to support prevention of cardiovascular disease. A few of the most significant (and the country in which they are based if not pan-UK) are included below:

Change 4 life (UK): This is a social marketing campaign developed by the UK government Department of Health to support people of all ages (including children) to make healthier lifestyle choices. Its base is a web-site which has tools to support health behaviour change on a range of lifestyle issues (such as diet, exercise, smoking), but also runs television, radio and other marketing campaigns. It partners with other organisations (both national and local – including major supermarkets and charities) to run health promotions. Its current promotion is “Sugar Swap” to encourage a reduced sugar consumption.

Joint British Societies consensus statement on prevention of cardiovascular disease 3rd Edition (JBS3) (UK): This update on recommendations for primary and secondary prevention of cardiovascular disease from the joint British societies now incorporates a lifetime risk approach to cardiovascular disease prevention (Heartage) in addition to the more usual 10 year risk approach. The [Risk Calculator](#) provides health professionals with attractive tools to support recommendation for health behaviour change to reduce risk. Currently the British Cardiovascular Society is working with partners (BACPR, NHS Choices, NHS England) and the BCS Regional Speciality Advisors to put in place social media campaigns and health professional workshops to improve uptake of this resource.

Smoking Cessation (UK): There has been a long, multi-faceted campaign to reduce smoking. Laws have been introduced banning smoking in public places and at work. NICE have produced guidance (PH10, 2008) on the multiple aspects that should be targeted for smoking cessation, including for NHS and local authority run smoking cessation services across the UK run by trained smoking cessation advisors who are able to support prescription of pharmacotherapies. There is a national No Smoking Day in the UK, supported by national helplines with advice on where to get support. There have been many multi-media campaigns, including very hard-hitting ones from the British Heart Foundation.

NHS Health Checks (England): This is a collaboration between the National Health Service (England), the Department of Health, Public Health England and local authorities to deliver 5 yearly free health checks to everyone between 40 and 74 who has not previously been diagnosed with a cardiovascular disease (defined as heart disease, stroke, diabetes or chronic kidney disease). Responsibility for delivering the NHS Health Check was given to local government authorities in 2013. For the year 2014-5, ~15% of the eligible population (15,449,660) were offered a health check, with an uptake of 46.4%. An evaluation of this programme is currently underway.

Marmot cities (England): This is an initiative between the Institute of Health Equity at University College London and the UK Department of Health to work with 6 cities across

England to promote a social determinants of health approach to improve health and wellbeing. One focus of the initiative is to improve prevention of long term conditions such as CHD by targeting public health interventions across the social gradients, and addressing social and economic factors which are implicated in poor health choices such as smoking, sedentary behaviour etc.

ACT FAST (England): This initiative by Public Health England (based on a successful US campaign) aims to improve recognition of stroke symptoms and reduce the time from event to treatment. This multi-media campaign has been found to have had a significant impact on direct emergency admissions (rather than through GPs) and thrombolysis rates for stroke (Flynn *et al.* 2014).

Education

For medical students, prevention of cardiovascular diseases is included in undergraduate training. For all health professionals (including nurses and allied health professionals), there are a number of options for advanced training in cardiovascular prevention, including University accredited schemes, ranging, for example, from the graduate level fully online stand-alone module (CHD Prevention Online) provided by the University of York, to the MSc in Cardiovascular Health and rehabilitation (University of Chester) and the MSc in Preventive Cardiology (Imperial College London). Additionally, BACPR Education provides a suite of online and face-to-face modules endorsed by the British Cardiovascular Society.

HEARTE: This is a free [heart disease e-learning project](#) developed by a partnership led by Chest Heart and Stroke Scotland which is aimed at health and social care professionals, but can also be accessed by patients.

Of the above prevention strategies, ACT FAST has been demonstrated to have significant impact on emergency admissions for stroke in different countries, and so we recommend it for adoption across Europe. Change 4 Life is now well-recognised by the UK population as a source of evidence-based advice and strategies for primary prevention, and such a multi-faceted marketing campaign could also be of benefit in other countries.

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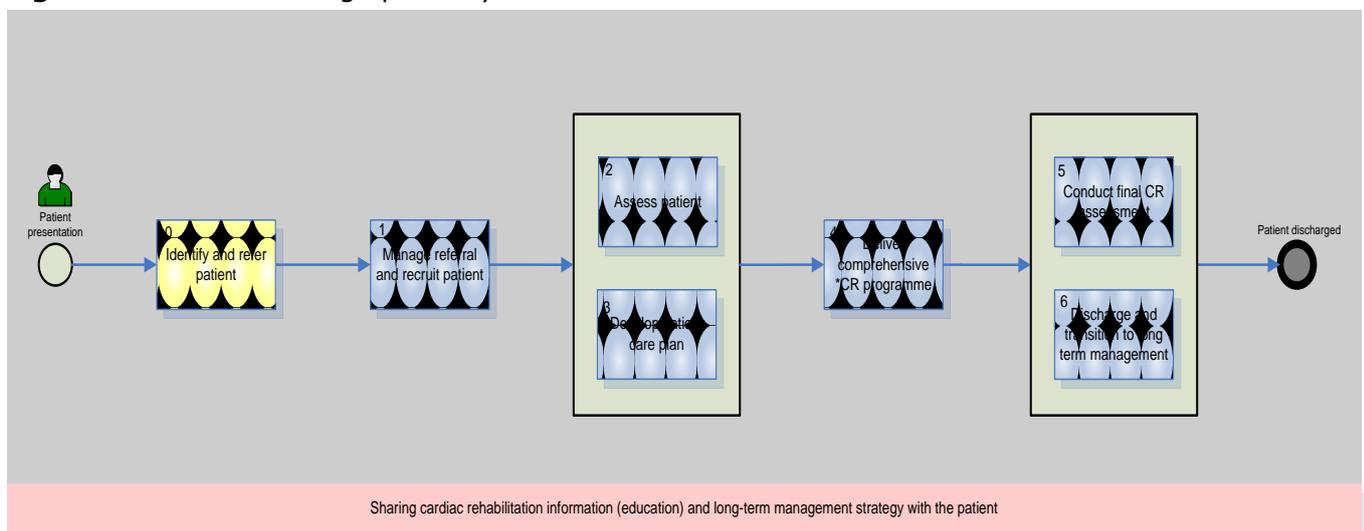
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V. Cardiac rehabilitation

Within the UK there are approximately 350 cardiac rehabilitation programmes, each treating varying numbers of patients per annum from the low hundreds to over 1000. The Department of Health developed a "Commissioning Pack for Cardiac Rehabilitation" in 2010, which detailed the pathway for cardiac rehabilitation, ceasing to refer to Phases by defining 7 stages in the pathway for cardiac rehabilitation (figure 1). The stages include:

- Stage 0 – Identify and refer patient
- Stage 1 – Manage referral and recruit patient to cardiac rehabilitation programme
- Stage 2 – Assess patient for cardiac rehabilitation
- Stage 3 – Develop patient care plan
- Stage 4 – Deliver comprehensive cardiac rehabilitation programme
- Stage 5 – Conduct final assessment
- Stage 6 – Discharge and transition to long-term management

Figure 1: The seven-stage pathway for cardiac rehabilitation services



*CR = cardiac rehabilitation

Source: Department of Health. (2010). "Commissioning cardiac rehabilitation." London, DH

In their Clinical Guideline (172) for secondary prevention following Myocardial Infarction (MI), the National Institute for Health and Care Excellence (NICE) denoted cardiac rehabilitation after MI as a key priority. NICE set guidelines that cardiac rehabilitation should be offered following admission for acute coronary syndrome, percutaneous coronary intervention, coronary artery bypass grafting, NSTEMI, heart failure or unstable angina people (regardless of age). NICE also set guidance that cardiac rehabilitation should commence during the inpatient stay, and that people post MI should commence formal cardiac rehabilitation within 10 days of discharge. More recently the UK government Department of Health has worked with key people in the NHS to publish the Cardiovascular Disease Outcomes Strategy which has promoted integrated services (including rehabilitation) for people with any form of (or at high risk of) cardiovascular disease.

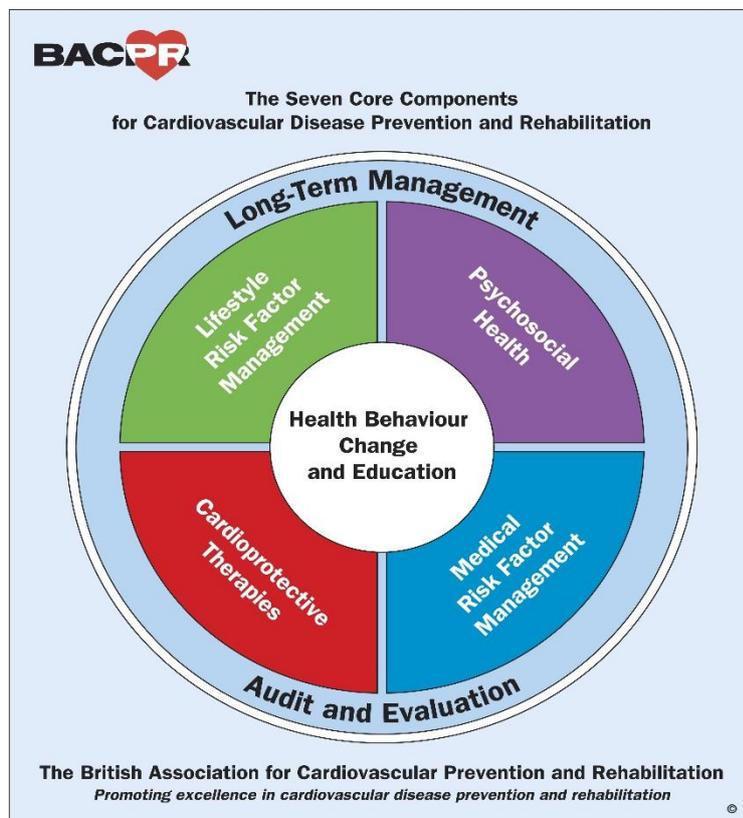
The British Association for Cardiovascular Prevention and Rehabilitation have developed seven standards (Box 1) and seven core components that cardiac rehabilitation programmes should meet to deliver evidence-based high quality rehabilitation.

Box 1. The seven BACPR Standards for high quality cardiac rehabilitation

1. The delivery of seven core components employing an evidence-based approach
2. An integrated multidisciplinary team consisting of qualified and competent practitioners, led by a clinical coordinator
3. Identification, referral and recruitment of eligible patient populations.
4. Early initial assessment of individual patient needs in each of the core components, ongoing assessment and reassessment upon programme completion.
5. Early provision of a cardiac rehabilitation programme, with a defined pathway of care, which meets the core components and is aligned with patient preference and choice.
6. Registration and submission of data to the National Audit for Cardiac Rehabilitation.
7. Establishment of a business case including a cardiac rehabilitation budget which meets the full service cost.

The core components are given in figure 2, which demonstrates that health behaviour change and education underpin the other components of cardiac rehabilitation.

Figure 2: The BACPR Core Components of Cardiac Rehabilitation



Source: BACPR (2012)

Competence of health professionals to deliver cardiac rehabilitation

BACPR are committed to improving the quality of cardiac rehabilitation within the UK. While we recognise that there are many excellent programmes, others may not deliver cardiac rehabilitation to such a high standard. BACPR standards (2012) demand that each of the core components of cardiac rehabilitation (see Figure 2) are led by health professionals who are highly competent in that component. To that end, BACPR are developing details of core competences that staff leading on delivery of a component should hold. Currently the core competences for delivery of physical activity and exercise have been developed, and the core competences to deliver the health behaviour change and education component, and for the dietetic component of risk factor reduction are under development and will be published later in 2015. The published core competences are available from www.bacpr.com.

Cardiac Rehabilitation Programmes

The majority of cardiac rehabilitation within the UK is delivered as either hospital or community based group programmes which usually includes an exercise programme, support for health behaviour change for risk factor reduction, education and psychosocial support. The programme is delivered by a multi-disciplinary team which includes specialist nurses and physiotherapists / exercise professionals, and may include dietitians, psychologists, occupational therapists, cardiologists and pharmacists. It should be noted that, within the UK, the majority of programmes are led by nurses or allied health professionals rather than by doctors. Evidence has shown that programmes led by non-medical health professionals can deliver highly effective cardiac rehabilitation (for example, the MyAction programme – see Wood et al. 2008). Many programmes also offer individual, home-based rehabilitation such as the Heart Manual programme for those not wishing or unable to attend group programmes, and more recently evidence has demonstrated the utility of web-based cardiac rehabilitation (<https://www.activateyourheart.org.uk/>).

Uptake of cardiac rehabilitation remains a challenge within the UK, with the latest statistics from the National Audit for Cardiac Rehabilitation (NACR) showing mean overall uptake to CR of 45%. This figure masks a large variance among the different conditions, see table 3. However, these figures do demonstrate some success – with the uptake after coronary artery bypass graft (CABG) at 80%.

Table 3: Uptake of cardiac rehabilitation by diagnosis/treatment group

Diagnosis / treatment group	% receiving CR
Myocardial infarction (no PCI)	33
Myocardial infarction and PCI	53
PCI (Elective)	40
CABG	80

Source: National Audit for Cardiac Rehabilitation Annual Statistics 2014, page 17

NACR (Doherty 2014) explored why people did not participate in acute hospital cardiac rehabilitation and in core rehabilitation. For acute hospital rehabilitation, 2% of patients

refused or were not interested whereas 48% were judged by staff to be not suitable for cardiac rehabilitation. The main reason why people did not attend core rehabilitation was that they were "not interested" (39%). As Doherty states, substandard care (as evidenced in non-referral to cardiac rehabilitation) should not be tolerated, and uptake of acute service cardiac rehabilitation will be the subject of monitoring by NHS England. Also cardiac rehabilitation programmes need to make their programme more attractive to patients in order to improve uptake of core rehabilitation.

Audit

As we have referred throughout this document, the National Audit for Cardiac Rehabilitation (NACR) provides both those commissioning cardiac rehabilitation services, and organisations providing those services, with the evidence to benchmark services across much of the UK. The majority of cardiac rehabilitation programmes within England, Wales and Northern Ireland report into NACR – Scotland currently does not, but that is under review. NACR not only collects referral rates, uptake and completion figures; it also collects individual patient data from baseline and follow-up assessments. These data not only include clinical data (diagnosis and treatment etc.) but can also include details of exercise capacity, psychological status and quality of life, and of format of rehabilitation received (group / home etc.).

The variance in delivery of cardiac rehabilitation across the UK that is evidenced within the NACR reports have identified the need for a solution to reduce this variance, and to support programmes to meet the outcomes delivered by the top performing programmes. To that end, BACPR are working with NACR to put in place a voluntary certification programme for cardiac rehabilitation. This will assess whether programmes meet minimum standards for cardiac rehabilitation based on their reports into NACR, for example on uptake, time to commencement of rehabilitation, frequency of delivery and length of programme. In future, certification criteria will also incorporate outcomes such as improvement in exercise capacity / risk reduction. The BACPR / NACR Certification Programme will launch in summer 2015.

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VI. The Future

Principal Strategic Needs

Policy makers, British cardiovascular joint societies and various heart-related charities have all acknowledged the importance of CVD prevention strategies and rehabilitation services. A joint NHS / Department of Health document – The Cardiovascular Disease Outcomes Strategy – endorses a number of key clinical priorities, including the integration of hospital and community-based care, improving acute CVD treatment and strengthening prevention and rehabilitation opportunities. However, the translation of this in to clinical practice in order to ultimately reduce CVD-related morbidity and mortality will prove challenging.

Possibilities

The devolution of power and health-care related finances from central to local government agencies and authorities may allow individual prevention/rehabilitation initiatives to be adopted more quickly and their successful outcomes to be disseminated more widely. British professional CVD organisations have worked collaboratively to produce a comprehensive assessment, prevention and treatment document for patients at risk of developing CVD (The Joint British Societies Third Consensus Statement). This will serve as a blue-print for all health-care professional to provide a consistent and evidence-based message to the general public.

Obstacles

The current economic climate and its anticipated impact on health-care funding along with predicated changes in UK population demographics could jeopardise funding commitments to prevention/rehabilitation strategies as resources are diverted to maintaining acute sector and social care services. Cardiology specialists are not sufficiently engaged in preventive/rehabilitation medicine and therefore the more established profiles of acute therapeutic interventions may continue to influence local commissioning decisions.

Plans

BACPR will continue to work closely with the Department of Health, government agencies such as NICE and SIGN, and other professional societies in order to influence policy decisions and promote the prevention / rehabilitation agenda. Educational initiatives and scientific conferences will be enhanced through closer collaboration with industry partners and more teaching / training materials will be offered on-line. Attempts will be made to embed a dedicated programme of preventive cardiology in to the training syllabus of cardiology trainees and to encourage senior cardiologists to actively support and champion preventive / rehabilitation services.

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