Cardiovascular Disease

Introduction

Cardiovascular disease (CVD) is the collective term for a group of related conditions affecting the heart, arteries or blood vessels, including coronary heart disease (accounting for about 50%) and stroke (about 25%). It represents a huge burden to patients, the health services and the economy. To a large part they are avoidable due to modifiable risk factors. According to the WHO the eight key risk factors (alcohol use, tobacco use, high blood pressure, high body mass index, high cholesterol, high blood glucose, low fruit and vegetable intake, and physical inactivity) account for as much as 61% of all cardiovascular deaths and over three quarters of all CHD: leading cause of death worldwide.

In 2016, CVD is estimated to cost the UK economy over £15 billion each year (including premature death and disability) and healthcare costs relating to CVD are estimated at up to £11 billion each year.

The Department of Health has published 'Living Well for Longer', 2013, which is about reducing avoidable, premature mortality caused by the big killer diseases, among which is cardiovascular disease. 'Premature Mortality' is death aged less than 75 years and it is hoped that England's premature mortality will become the lowest among our European peers.

The Longer Lives website compares premature mortality from overall and specific diseases from similar local authorities. It shows that Bedford Borough is eighth of 15 for premature mortality caused by heart disease and second out of 15 for strokes compared to similar Local Authorities (LA) for 2013-15; overall it was 56th of 150 (heart disease) and 11th of 149 (stroke) for all LAs.

CVD is an overarching term that describes a family of diseases (including stroke, heart attack, peripheral vascular disease, chronic kidney disease and diabetes) sharing a common set of risk factors.

There are effective interventions that can reduce risk factors, prevalence and deaths from CVD. In addition to medical interventions, people making healthier choices, such as stopping smoking, taking regular physical activity, eating healthier foods, using alcohol in moderation and promptly accessing services can reduce the risk and deaths from CVD.

There are variations in the prevalence of CVD across the population that demonstrate inequalities in health, for example in relation to occupational group and ethnicity. Deaths from coronary heart disease are three times higher among unskilled men than among professionals, and around 50% higher in South Asian communities than in the general population.

Coronary heart disease

Coronary heart disease (CHD) is the failure of coronary circulation leading to lack of blood supply to heart muscle. CHD is most commonly linked with coronary artery disease although it can be due to other causes such as spasm of the coronary

vessels. It is caused by atherosclerosis within the walls of the arteries that supply the heart muscle resulting in angina pectoris (chest pain) and myocardial infarction (heart attack).

What do we know?

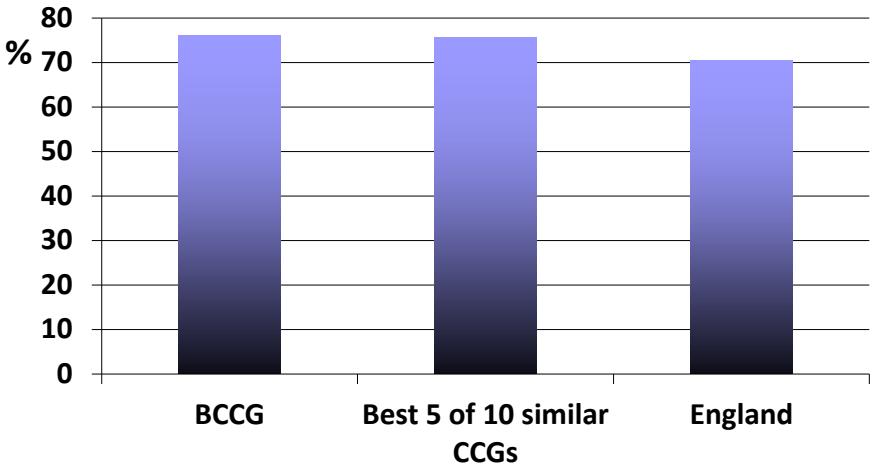
Facts, Figures, Trends

Prevalence

5,230 (3.0%) in Bedford Borough and 13,845 (3.0%) in Bedfordshire CCG (BCCG) were diagnosed to have CHD and were on the disease register in 2016. This is lower than the prevalence for NHS England (3.2%).

The observed prevalence for CHD in Bedfordshire CCG was thought to be about 76% of the estimated prevalence indicating about a quarter of the population with CHD have unrecognised and undiagnosed disease, 2015. The reported to estimated CHD prevalence in was compared to 70.5% for England and 75.5% for the Best 5 of 10 similar comparator CCGs[1] (see **Figure 1**).

Figure 1 Reported to observed CHD prevalence (2014/15)

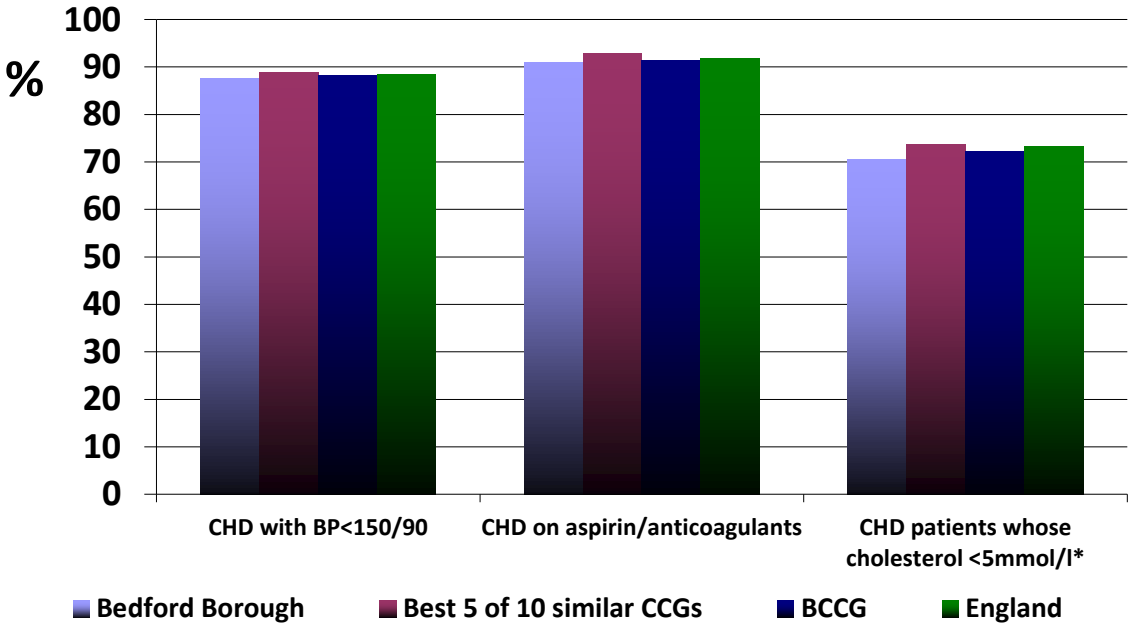


Clinical management

Figure 2 illustrates the percentages of patients with CHD, monitored through recommended care management indicators. Bedford Borough had lower results than the average of Best 5 of 10 similar CCGs.

Figure 2 Primary care clinical management of patients

[1] Mid Essex, West Essex, East and North Hertfordshire, Nene, Basildon and Brentwood, Dartford, Gravesham and Swanley, West Kent, Wiltshire, Chiltern and Southern Derbyshire

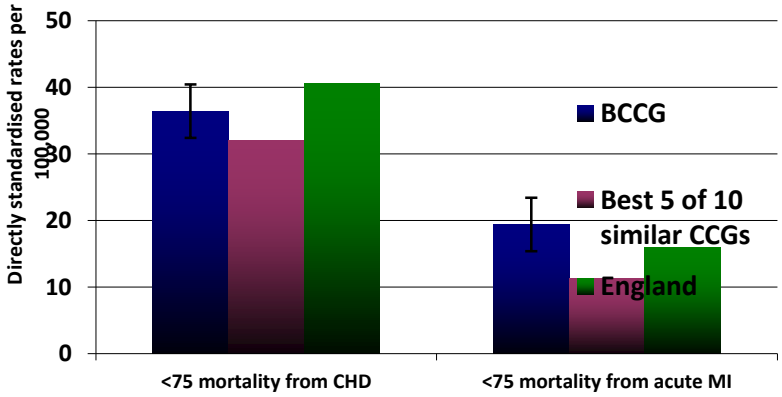


BCCG- Bedfordshire CCG
*Source: QOF, 2014/15, *2013/14*

Coronary heart disease (CHD) admissions
In 2014/15 the admission rate for CHD in Bedfordshire CCG was 545.3 per 100,000 (2,132 admissions). This is slightly higher than England, p5 (539.7 per 100,000)

Mortality
Premature mortality (before the age of 75 years) due to coronary heart disease (CHD) increases with age and CHD is the largest contributor for cardiovascular disease (45%). In the same way, acute myocardial infarction (MI or heart attack) is one of the diseases that make up CHD. In the three year period 2011-13, the premature mortality rate from CHD and acute MI was 36.4 and 19.4 per 100,000 respectively in Bedfordshire CCG: these were statistically significantly higher than the Best 5 of 10 similar CCGs (**Figure 3**).

Figure 3 Premature mortality due to Coronary Heart Disease & acute MI, 2011-13



BCCG- Bedfordshire CCG
CHD- Coronary Heart Disease
MI- myocardial infarction

Source: From data in Commissioning for Value, Cardiovascular disease, May 2016

Stroke

- Stroke is due to loss of blood supply to brain cells. This affects the body which are controlled by these brain cells. A TIA (Transient Ischaemic Attack) or a 'mini stroke' occurs when a temporary loss of blood supply affects the brain cells and parts of body temporarily for less than 24 hours
- The most important modifiable risk factors are high blood pressure and atrial fibrillation and other factors associated with them. These are high blood cholesterol levels, diabetes, smoking (active and passive), heavy alcohol consumption and drug use, lack of physical activity, obesity and unhealthy diet.

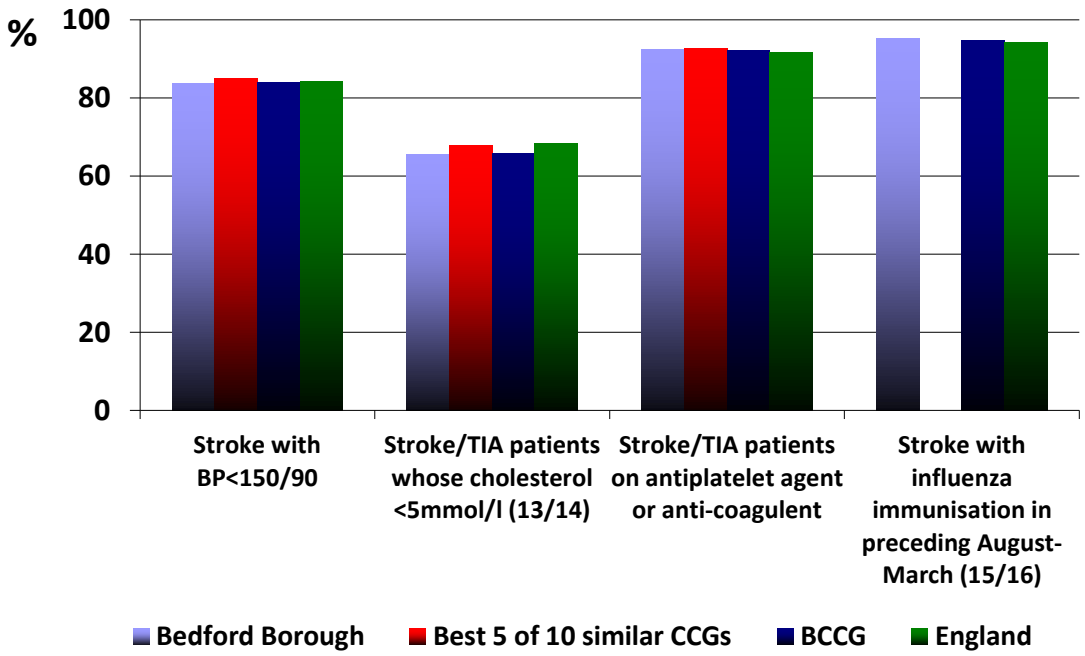
What do we know?

Facts, Figures, Trends
Prevalence

- In 2015/16, the observed prevalence of stroke was 2,615 (1.5%) in Bedford Borough and 7,035 (1.5%) in Bedfordshire CCG; Bedford Borough had a lower rate compared to England (1.7%)

Clinical management
Diagnosis and management
Figure 4 shows the diagnosis and management for Bedford Borough, Bedfordshire CCG, Best 5 of 10 similar CCGs and England. Bedford Borough's indicators were below the rate of the Best 5 of 10 similar CCGs.

Figure 4 Diagnosis & management for stroke & TIA, 2014/15 unless otherwise specified



Admissions

In 2014/15 the admission rate for stroke in NHS Bedfordshire CCG was 133.6 per 100,000 (505 admissions). This is significantly lower than England (171.9). The admission rate for strokes in the CCG decreased by 12.5% between 2004/05 and 2014/15.

81.4% of BCCG's patients spent 90% of their time following admission on the stroke unit (2014/15). This was statistically significantly, p5 lower than the Best 5 of 10 similar CCGs (86.3%).

Ambulance response times are very important for acute stroke patients as prognosis is party dependent on the time to start treatment.

Premature mortality
The premature mortality rate due to stroke in Bedfordshire CCG was 10.5 per 100,000 in the three-year period 2012-2014. The early mortality rate, p6 is significantly lower than England (13.8).

Atrial fibrillation (AF)

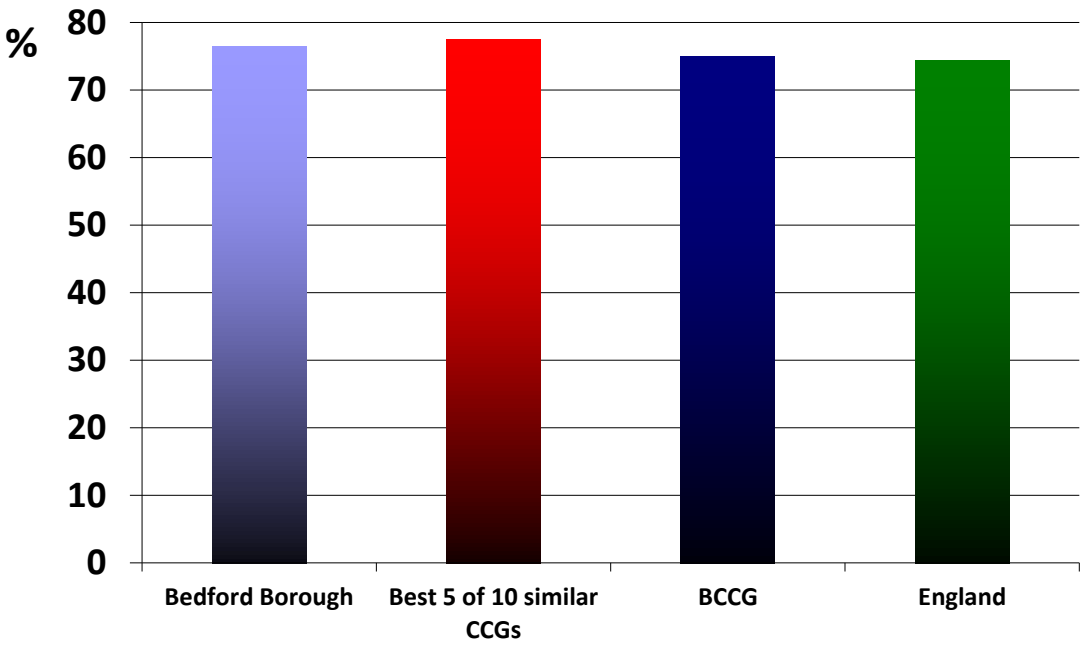
In AF, a form of irregular heartbeat, the upper chambers of the heart contract in a fast and irregular way. As a result, blood pools in the heart and this increases the risk of blood clots forming in the heart chambers. These can release tiny embolus and can cause either TIA or ischaemic stroke. Detection and treatment of AF is an effective strategy for the reduction of stroke among those with this condition.

What do we know?

Facts, Figures, Trends
The prevalence of AF recorded was 2,827 (1.6%) in Bedford Borough and 7,636 (1.6%) in Bedfordshire CCG, 2015/16; England's rate was similar (1.7%).

Clinical management
In 2014/15, 76.5% of the high stroke risk Atrial Fibrillation patients (ie CHADS2 score greater than 1) were treated with anti coagulants or anti platelets in Bedford Borough and 75.0% in Bedfordshire CCG. These are lower than the Best 5 of 10 similar CCGs (77.4%)

Figure 5 AF patients: high stroke risk (CHADS2 score is greater than 1) treated with anti-coagulation therapy, 2014/15



Hypertension

Hypertension, or high blood pressure, is a chronic condition in which pressure exerted by the blood on the walls of the arteries rises; the heart then has to work harder to pump blood through the blood vessels.

Most cases are diagnosed as 'essential hypertension' which means that the high blood pressure is with no obvious underlying medical cause. Hypertension is a risk factor for stroke/TIA, heart attacks, heart failure, arterial aneurysm, peripheral vascular disease and chronic kidney disease.

What do we know?

Facts, Figures, Trends

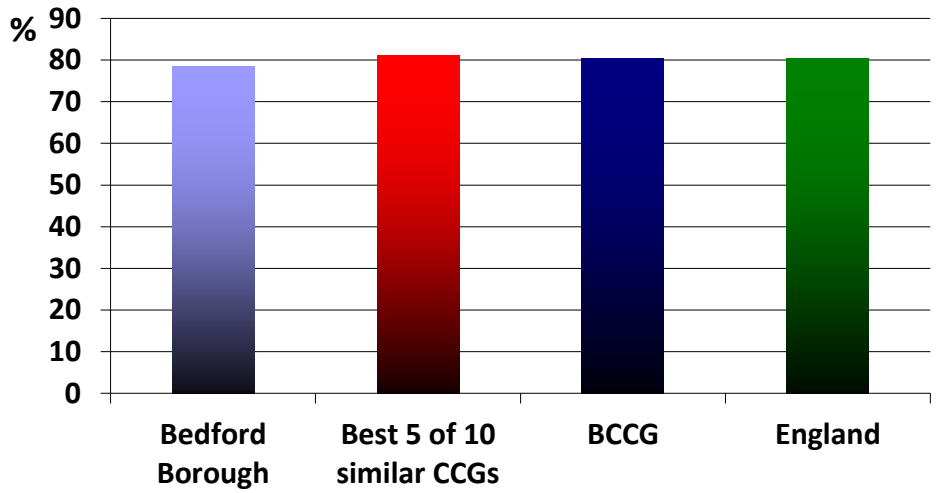
The observed prevalence of hypertension in 2015/16 was 27,087 (13.7%) in Bedford Borough and 466,465 (13.9%) in Bedfordshire CCG. These are similar to the NHS England rate (13.8).

The estimated prevalence and the known incidence, p3 in various subgroups of the population are shown here. The gap between recognised and actual hypertension levels has been long recognised.

Clinical management

78.5% in Bedford Borough and 80.5% in Bedfordshire CCG of the patients on the hypertension disease register have their blood pressure under 150/90, 2014/15 (**Figure 6**). Bedford Borough's results were lower than the Best 5 of 10 similar CCGs (81.1%).

Figure 6 Hypertension patients whose blood pressure <150/90, 2014/15



Source: QOF, 2014/15, Commissioning for Value, May 2016

Heart failure

Heart failure (HF), also called congestive heart failure (CHF), is defined as the inability of the heart to pump sufficient blood to meet the requirement of tissues. Common causes of heart failure include myocardial infarction (heart attack), ischaemic heart disease, hypertension, valvular heart disease and cardiomyopathy. HF is a common, expensive, disabling cardiac condition and patients are rarely seen in the below 45 year age group.

What do we know?

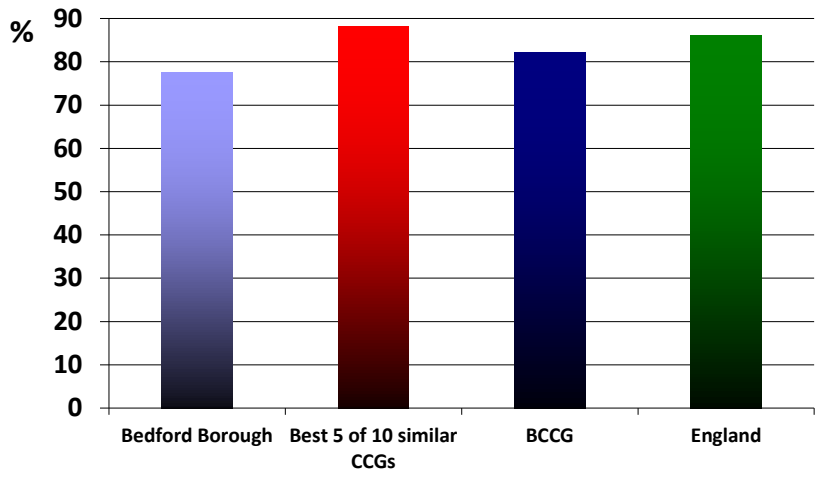
Facts, Figures, Trends

Observed prevalence of heart failure in Bedford Borough was 1,261 (0.7%) and Bedfordshire CCG was 3,072 (0.7%) for all age groups compared with 0.7% for England, 2015/16.

Clinical management

193 (77.5%) in Bedford Borough and 565 (82.1%) in Bedfordshire CCG of the patients with heart failure from left ventricular systolic dysfunction treated with ACE-1/ARB, 2014/15, see **Figure 7**. Bedford Borough's results were lower than the average Best 5 of 10 similar CCGs.

Figure 7 Heart failure patients from left ventricular systolic dysfunction treated with ACE-1/ARB, 2014/15



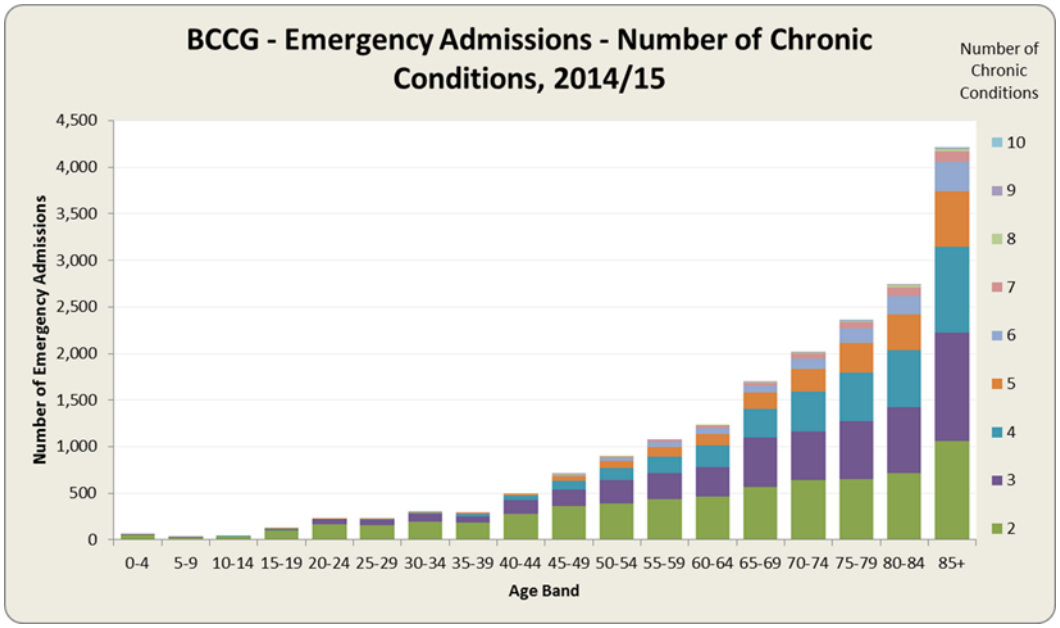
Source: QOF, 2014/15, Commissioning for Value, May 2016

In 2014/15 the admission rate for heart failure, p5 for all persons, in NHS Bedfordshire CCG was 140.9 per 100,000 (529 admissions).

Multi-morbidity

Multi-morbidity is often defined as the co-existence of two or more long-term conditions in an individual including mental illness. It is the norm rather than the exception in primary care patients, and will become more prevalent as the population of Bedford Borough ages. The prevalence of multimorbidity increases substantially with age and is present in most people aged 65 years and older.

Figure 8 Emergency admissions: number of chronic conditions, 2014/15



People with long-term conditions and co-morbid mental health problems disproportionately live in deprived areas and have access to fewer resources of all kinds. The interaction between co-morbidities and deprivation make a significant contribution to generating and maintaining inequalities.

Collaborative care arrangements between primary care and mental health specialists can improve outcomes with no or limited additional net costs. An innovative form of liaison psychiatry demonstrated that providing better support for co-morbid mental health needs can reduce physical health care costs in acute hospitals.

Current programmes & pathways

Abdominal aortic aneurysm screening

An abdominal aortic aneurysm (AAA) is a weakening and expansion of the aorta, the main blood vessel in the body. Large aneurysms are rare but can be very serious. Approximately 3,000 men aged 65 and over in England and Wales die every year from ruptured abdominal aortic aneurysms.

Men aged 65 and over are eligible for AAA screening and the NHS invites men during the year they turn 65. Men over 65 who have not been screened previously can arrange a screening appointment by contacting their local programme directly.

The proportion of men eligible for Abdominal Aortic Aneurysm screening to whom an initial offer of screening is made is recorded (coverage); the minimum standard is 75%. In 2015/16, Bedfordshire CCG's results were 81.2%.

NHS Health Checks programme

The NHS Health Check programme aims to help prevent heart disease, stroke, diabetes, dementia and kidney disease. Everyone between the ages of 40 and 74, who has not already been diagnosed with one of these conditions, will be invited once every five years to their GP practice to complete their NHS Health Check.

During the appointment a QRISK2 score is calculated for the patient's predicted likelihood of having a heart attack or stroke in the next 10 years. The appointment provides a platform to offer the patient individual advice and support to help them to reduce and/or manage their risk. See the NHS Health Check chapter for more information.

Cardiology services

Primary care

There are 53 practices in Bedfordshire, all involved in the care of patients with cardiovascular diseases, 24 of these practices are principally providing primary care services to the population residing in Bedford Borough. There are also staff members employed by Bedfordshire Community Health and local Acute Trusts who provide services in the community for people with heart failure rehabilitation, these services are however not provided universally across the county.

Bedford Hospital Trust

Cardiology services at Bedford Hospital are summarised here.

Stroke service

Victoria Stroke Unit at Bedford Hospital is a 15-bedded ward. There is also a day room. 20. Bedford Hospital acute pathway stopped admitting patients with acute stroke in 2016 to reduce the number of Hyper Acute Stroke Units (HASU) from four to three across Bedfordshire, Hertfordshire, Luton and Milton Keynes. This is in line

with national evidence that recommends that a small number of specialist services, such as thrombolysis for stroke and major trauma, are centred on fewer sites with the aim to improve services for patients. Specialised centres that have frequently practicing teams and full facilities, with high patient throughput, generally have better patient outcomes. The acute patients are now diverted to Lister and return to Bedford Hospital after the patients have been in hospital 72 hours and are stable.

The stroke consultant together with a multidisciplinary team leads the Victoria Stroke Unit. The team is made up of doctors, a stroke specialist nurse, nurses, physiotherapists, occupational therapists, speech and language therapists and dieticians. The team works closely with other professionals such as pharmacists, social workers and community rehabilitation teams.

Impact & effectiveness

CVD focus pack for NHS Bedfordshire CCG is produced by RightCare. It is an in-depth look at our spend, activity, quality and outcomes.

NHS Health Checks

Economic modelling suggests that the estimated savings to the NHS budget nationally is around £57 million over four years, rising to £176 million over a fifteen-year period.

Comparison of costs and savings

- Total life-time gain for Bedfordshire CCG is 2,223 QALY[2] per year as a result of the NHS Health Checks at a cost of about £1,900 per QALY. There are very few health interventions where improvements in quality of life and survival can be achieved so cost effectively.

Cost and implication of stroke/TIA on health economy

Stroke statistics, 2016 found that the average cost of care (acute and rehabilitation) per stroke patient is currently £23,315. The economic costs of stroke in the UK from a societal perspective totals around £9 billion a year: health and social care costs are approximately £4.38 billion a year (49%), informal care costs are estimated to be £2.42 billion a year (27%), productivity losses (i.e. income lost) due to care, disability and death are estimated to be approximately £1.33 billion (15%) and benefit payments total approximately £841m (9%)

National & Local Strategies (Current best practices)

NICE guidelines:

- The national institute for health and clinical excellence (NICE) has published guidance on reducing premature deaths from CVD in disadvantaged groups, thereby narrowing the gap in health inequalities. This guidance focuses on primary care practitioners undertaking outreach work, or proactive case finding to identify adults who are at risk and disadvantaged, and identifies prescribing statins and stopping smoking as effective and cost-effective interventions

[2] QALY- Quality Adjusted Life Years. It takes into account both the amount and quality of life generated by a healthcare intervention

- Myocardial infarction with ST-segment elevation (2013)
- Stable angina (2011)
- Acute (2014) and (Chronic heart failure (2010)
- Chest pain of recent onset: Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin (2010)
- Prevention of cardiovascular disease (2010)
- Stroke: Diagnosis and initial management of acute stroke and transient ischaemic attack (TIA) (2008) (updated Jan 2011)

National service framework:

- National service framework (NSF) for coronary heart disease, published in March 2000, sets out a strategy to modernise CHD services
- Stroke services are part of the national service framework for older people, published in March 2001
- Long term conditions
- Stroke (last updated 2008):

NHS England

- In January 2015, NHS England published three handbooks to support commissioners and practitioners in planning services for people with long term conditions (LTCs), in order to achieve more effective, personalised care for this group. The handbooks are: case finding and risk stratification, personalised care and support planning and multi-disciplinary team (MDT) working

Public Health England

- A 1 page summary on cardiovascular disease prevention: risk detection and management in primary care has been published in 2016. It is an evidence-based pathway to give a high-level overarching national case for change, a best practice pathway for individual conditions and a best practice case studies for elements of the pathway demonstrating what to change, how to change and a scale of improvement

Government policies

Government policy in many areas influences CVD and many of them are covered in the prevention chapters. The policy documents published include:

- 'Living Well for Longer', 2013, which is about reducing avoidable, premature mortality caused by the big killer diseases, among which are cardiovascular diseases.
- Long term conditions

What is this telling us?

What are the key inequalities?

There are variations in the prevalence of CVD across the population that demonstrate inequalities in health, for example in relation to occupational group and ethnicity. Deaths from coronary heart disease are three times higher among unskilled men than among professionals, and around 50% higher in South Asian communities than in the general population.

In the Segment Tool (Chart 5), the major cause of the life expectancy gap between the most and least deprived was circulatory system: 25% in men and 32% in females in Bedford Borough, 2012-14.

Recommendations:

Bedfordshire CCG is currently reviewing all clinical pathways, using a RightCare approach, and the review will not be complete until early/mid 2017. At this point, a full analysis of service provision, gaps and service needs will be summarised and shared with system partners.

This chapter links to the following chapter in the JSNA:

- NHS Health Checks