Dear to Our Hearts?

Commissioning Services for the Treatment and Prevention of Coronary Heart Disease
The Audit Commission

... promotes proper stewardship of public finances and helps those responsible for public services to achieve economy, efficiency and effectiveness.
# Dear to Our Hearts?

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Preface

This report is based on formal and informal studies carried out in nine health authorities (commissioning agencies), together with reviews of the available literature and professional opinion. The Audit Commission gratefully acknowledges the contributions of all the authorities and individuals listed in Appendix 1. The programme approach to coronary heart disease prevention and treatment used by the Audit Commission is similar to that adopted in the longer term purchasing development project being conducted in Oxfordshire and Gloucestershire under the auspices of the Conference of Medical Royal Colleges and the NHS Executive. The Audit Commission intends that its work should complement that project and the contributions of other agencies concerned to improve further the quality of coronary heart disease services in England and Wales.
Introduction

1. Commissioning is central to the ‘new NHS’. The introduction of a distinction between purchaser and provider responsibilities is a key element of recent policies aimed at improving public services, in part through competition. The creation, as from April 1996, of unified health authorities, combining the previously separate roles of district health authorities and family health services authorities, should be an important step towards achieving a more comprehensive approach to health care commissioning. The new authorities (which were established in shadow form during 1995/96) will be in a good position to respond to patient needs and preferences in a comprehensive manner, free from sectional service interests and traditional care boundaries.

2. The main task of health authorities is to enhance the health of the populations they serve. But it is not as yet clear how effectively commissioners will be able to achieve this goal, particularly given the weaknesses in the evidence available to them as to the effectiveness and efficiency of many forms of care. Good practice in key areas, such as promoting the development of primary and secondary care to ensure better clinical standards and more co-ordinated patient support, is still largely undefined. Health authorities will require a wide range of complex skills to enable them to contribute to sustained improvements in the quality of health promotion and disease treatment provided through public spending.

3. Against this background, this report looks at the commissioning of services for the prevention and treatment of coronary heart disease (CHD), which in total cost the NHS approximately £1,000 million per annum. These outlays are evenly divided between hospital and community services (Exhibit 1). Despite recent falls in the mortality attributed to CHD (Exhibit 2, overleaf), it remains a major health problem in England and Wales, accounting for one death in every four. If other conditions with the same causes as CHD (such as stroke and lung cancer) are taken into consideration, this ratio rises to one in every two deaths.

4. Improved CHD prevention and treatment should therefore be a major priority in all parts of the country, even though the scale of harm resulting from it varies between districts. In England and Wales today CHD death rates are higher than average among economically disadvantaged populations, and in the North as opposed to the South. There are also significant differences between cultural and racial groups. For example, people with south Asian/Indian ethnic origins are at particular risk of developing CHD.

5. This report, which builds on earlier Audit Commission studies on health authority roles and performance (Refs. 1, 2), provides a brief overview of the challenges faced by the new health authorities in relation to CHD. It has been prepared in conjunction with an audit on commissioning for cardiac health, which is being applied in districts throughout England and Wales during 1995/96. This report is divided into three chapters, followed by a checklist of
questions for health authority members and a Glossary of technical terms used (see page 48). The content is structured as follows:

- **Chapter 1** defines the services relevant to CHD prevention, treatment and patient care and the agenda of issues to be considered in this field. The available evidence on effectiveness and efficiency in relation to each main type of intervention is assessed;

- **Chapter 2** briefly examines current commissioning practices and problems, and the types of service development currently taking place;

- **Chapter 3** considers the ways in which health authorities could in future overcome the challenges they face, and the actions their chief executives and board members can take to promote improved services for the prevention and treatment of coronary heart disease.

6. The objective of this work is to identify the actions that health authority board members and managers need to take to promote the success of unified commissioning – as indicated, for example, by English districts’ abilities to achieve or exceed the targets for CHD set in the Health of the Nation (HotN) programme (Box A, overleaf). A key challenge for the new health authorities will be to balance the benefits of increasing further the provision of sophisticated medical interventions, such as coronary artery bypass operations, against the health gains which might be made from alternative forms of prevention, treatment and care improvement.

7. Work on more effective ways of addressing the specific topic of coronary heart disease services should also bring general benefits in areas such as:

- the development of evidence-based commissioning;
- the implementation of the Health of the Nation;
- the development of a ‘primary care-led’ NHS; and
- the management of health service quality improvements.

8. The NHS reforms of the 1990s have stimulated a degree of competition between care providers. But the new commissioning agencies are not subject to market pressures (Ref. 3). Service users cannot choose their health authorities, short of moving to different parts of the country. By the same token, authority-based commissioners cannot, unlike general practitioners, choose or reject patients. The latter fact is important in that it encourages health authorities to address the aggregate needs of their entire populations. However, lack of consumer choice as to the bodies responsible for district-level commissioning could in some circumstances carry with it a danger of insensitivity to patient and public requirements. This may be offset by the production and publication of statistical comparisons of the levels of service – and where possible the processes and/or outcomes of care – enjoyed by the populations served by each health authority.
**Exhibit 2**

**Coronary heart disease death rates**

Despite recent falls in the mortality attributed to CHD, the condition remains a major health problem in England and Wales.

A – CHD deaths among people aged under 65.

B – CHD deaths among people aged 65 – 74.

*Note: District 1 (Bolton) had the highest recorded CHD death rate in England among people aged under 65 in 1984, and District 11 (SW Surrey) the lowest. Districts 2-10 were on the intervening decile points of that distribution.*

*Source: Office of Population Censuses and Surveys*

**Box A**

**Health of the Nation targets for coronary heart disease mortality reduction**

- To reduce death rates for both CHD and stroke in people under 65 by at least 40 per cent by the year 2000 (baseline 1990)
- To reduce the death rate for CHD in people aged 65-74 by at least 30 per cent by the year 2000 (baseline 1990)
9. As yet, only limited amounts of such comparative performance information exist in readily accessible form. This is in part because of limitations in data collection systems, and in part because rational evaluation frameworks have not been agreed. Such fundamental problems cannot be easily or quickly remedied. However, within the NHS a great deal of work is being undertaken on performance evaluation. Many CHD service quality indicators have already been identified. (Table 1 illustrates the range of measures possible in the area of preventive care; a more complete set of potential indicators covering prevention and treatment is contained in Appendix 2, page 54). Given that the new health authorities’ role is to promote health gain in their populations via improved prevention and treatment, trends in such indicators (assessed against the underlying challenges faced by each authority or group of like authorities) should in time provide a fair basis for assessing the achievements of commissioners.

### Table 1
Performance indicators relating to the prevention of coronary heart disease

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>Percentage of health workers (eg, practice nurses or health visitors) with relevant training (eg, Look After Your Heart trainer courses).</td>
<td>Structural quality indicator. Evidence on relationship between training provision and health outcomes is not yet available, but such an indicator should be a reasonable pointer to health authority and health promotion unit performance.</td>
</tr>
<tr>
<td>Percentage of GP practices operating at the highest prevention scheme level. (That is, band three – see Box B on page 13).</td>
<td>Structural quality indicator, linked to some monitored processes. Areas with poorest performance likely to have greatest health needs and practitioner support requirements.</td>
</tr>
<tr>
<td>Percentage of patients with CHD risk factor status (eg, blood pressure) recorded.</td>
<td>A good indicator of general practice process quality. Considerable performance variance at present. Eg, in the lowest performing district only 30 percent of the 1995/6 blood pressure recording target is being met, compared with 76 per cent reported in the highest level performer (Oxford).</td>
</tr>
<tr>
<td>Percentage of patients with risk factor receiving appropriate intervention – eg, treatment for hypertension or anti-smoking advice and support.</td>
<td>‘Appropriate intervention’ needs careful specification. For example, giving advice about how to stop smoking to smokers who have no intention of changing is of no value. Otherwise a valuable indicator of process output.</td>
</tr>
<tr>
<td>Risk factor trends (eg, for exercise), and aggregated risk factor scores for populations.</td>
<td>The aggregated risk factor trend (if available) is the best general outcome indicator for CHD primary prevention. But it is influenced by many non-NHS factors, and is therefore an indicator of need as well as service impact.</td>
</tr>
<tr>
<td>Population awareness of CHD risk factors, and satisfaction with practice and other community-based primary prevention.</td>
<td>Important population needs and intermediate outcome quality indicators, not usually available for either practice or district populations.</td>
</tr>
</tbody>
</table>
Coronary heart disease (CHD) is caused by the build up of cholesterol containing plaque in the walls of the coronary arteries, reducing the flow of blood and so the supply of oxygen to the heart muscle. This may cause pain in the heart, known as angina. It can also lead to heart attacks and heart failure.

Primary prevention helps healthy people reduce their risk of developing heart disease. The goal of secondary prevention is to stop the progression of CHD and heart failure after it has become established.

Other key forms of cardiac care include emergency treatment for people with heart attacks, surgical and other interventions to improve blood supply to the heart muscle, and rehabilitative and allied care to help people recover from acute events and live with disabilities.

The use of a programme framework encompassing all aspects of CHD prevention and treatment should enable unified health authorities to understand and influence effectively CHD service development in their districts.

1 Services for the Prevention and Treatment of Coronary Heart Disease
The nature of coronary heart disease

10. In coronary heart disease the blood vessels supplying the heart (the coronary arteries) become narrowed due to the formation of cholesterol-containing material (known as plaque) within their walls. (See the brief Glossary at the end of this report for more information.) This inhibits blood and hence oxygen supply to areas of heart muscle. In more advanced cases, it results in a characteristic type of chest pain – often experienced when patients exert themselves – known as angina. Angina affects approximately one million people in England and Wales.

11. Individuals with diseased coronary arteries are (whether or not they have angina) at increased risk of suffering heart attacks (also called acute myocardial infarctions). These occur when the inner lining of a diseased coronary artery ruptures and clots form on exposed areas of plaque, blocking the flow of blood and so cutting oxygen supply to an area of heart muscle. If, as a result, a very large part of the muscular heart wall (the myocardium) is killed, then the patient’s death is inevitable. Even minor infarctions can be fatal if the electrical signals co-ordinating the rhythm of the heart are disturbed and it begins to beat in a chaotic way (see ventricular fibrillation). Approximately 25 per cent of those who suffer diagnosed heart attacks die before reaching hospital. A further 5 per cent can be expected to die within four hours of admission, and another 5 – 10 per cent will be dead by the end of the first week.

12. Partial blockages (caused by clots which form and then dissolve again) result in transient periods of unpredictable heart pain, known as unstable angina. People experiencing unstable angina are at high risk of a full heart attack. Many younger individuals with CHD are not diagnosed as having it before they have had a heart attack or an episode of unstable angina. Between 10 and 20 per cent of men over 50 have had a heart attack at some time, although not all of them will have been diagnosed.

13. As well as causing angina and heart attacks, CHD can eventually lead to heart failure (Ref. 4). This occurs when the ability of the heart (and often most importantly its main chamber, the left ventricle) to pump blood round the lungs and/or the rest of the body is permanently impaired. This ultimately fatal condition causes distress and disability in about half a million people in England and Wales.

The service range

14. The occurrence and progression of CHD is in part linked to fixed (although often treatable) biological factors such as genetic endowment or whether or not a patient has insulin dependent diabetes, and in part to a range of variable lifestyle factors (Exhibit 3, overleaf). Prevention may therefore involve help with behavioural changes like giving up smoking, reducing saturated fat consumption and taking more exercise, as well as medical interventions such as the use of drugs to reduce blood pressure or the level of cholesterol in the blood. If care of these types is offered to individuals who are apparently free of CHD it is termed primary prevention. If it is provided to people who have already developed coronary heart disease it may be called secondary prevention. These are the definitions of primary and secondary prevention used throughout this report.
15. The main types of coronary heart disease-related care supplied by the NHS are:

- primary prevention;
- case finding and patient treatment (including symptom alleviation and secondary prevention) in general practice, supported as and where necessary by hospital diagnostic and outpatient cardiological facilities;
- emergency care for people with heart attacks;
- hospital inpatient treatment for patients with CHD; and
- cardiac rehabilitation services in hospital and community settings.

16. The various forms of service for CHD prevention and treatment should logically be linked together to form an overall programme (Exhibit 4). The use of a comprehensive, disease-based, programme framework can enable commissioners to understand and influence in a co-ordinated way the direction of CHD service development in their districts.
17. In the last decade or so there have been important developments in the cardiological services available in England and Wales. For instance, recent British Cardiac Society survey data show that the number of specialist cardiologists has increased by over 50 per cent since the start of the 1980s. More dramatically, the number of coronary artery bypass operations performed on patients with CHD increased fivefold between 1980 and 1994 (Exhibit 5, overleaf). However, the rates of such surgery in England and Wales remain below those of most other western developed nations (see paragraph 38), and there is a variety of ways in which NHS services for the prevention and treatment of CHD could be further improved. The types of intervention provided in each main area of CHD care are outlined below, along with the evidence on the scale and costs of the opportunities available for better care outcomes.
18. Reductions in CHD risk factors resulting from changes in lifestyle can reduce markedly the incidence of new cases of coronary heart disease (Ref. 5). The available evidence indicates that the decrease in CHD death rates recorded since the 1970s among people of working age is largely attributable to risk factor reductions rather than better medical treatments, and that the potential number of additional years of healthy life to be gained through further risk reductions far exceeds that available from any form of direct treatment. The elimination of tobacco smoking alone could in the medium to long term save hundreds of thousands of life years per annum.

19. However, this does not automatically justify investments in primary prevention. The effectiveness of many of the interventions available is unproven. This is in part a problem of measurement: it is more difficult to assess the impact of diverse attempts to influence the behaviour of populations than it is to evaluate the impact of conventional clinical treatments on the biological functioning of individuals. But it is also the case that primary prevention interventions that reach only small audiences and offer each individual within them only a small absolute reduction in the chance of their becoming ill (such as the provision of special exercise classes for people who do not have CHD) (Ref. 6) are inherently unlikely to be cost effective.

National programmes
20. There are at present two main initiatives aimed at the primary prevention of CHD and a range of other conditions:

- the nationwide banded GP health promotion scheme; and
- the (English) Health of the Nation (HotN) programme.
The NHS in Wales has independently pioneered a number of CHD prevention initiatives like those in HotN, including – for example – Heartbeat Wales and Health Promotion Wales.

Preventive care in general practice

21. The GP scheme has evolved significantly since its introduction in 1990. It now offers payments for family doctors in practices which offer preventive care to their patients, grouped into three bandings (Box B). Its main effect has been to encourage more extensive collection of data about the occurrence of

<table>
<thead>
<tr>
<th>Box B</th>
<th>The banded GP health promotion scheme</th>
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<tr>
<td><strong>Band 1: smoking cessation</strong></td>
<td></td>
</tr>
<tr>
<td>Practices are required to:</td>
<td></td>
</tr>
<tr>
<td>✷ develop a practice age–sex register;</td>
<td></td>
</tr>
<tr>
<td>✷ collect information opportunistically on the smoking habits of the target population (those aged 15-74);</td>
<td></td>
</tr>
<tr>
<td>✷ offer advice, interventions and follow up, as appropriate, in line with modern medical opinion, relevant local factors and practice guidelines, to reduce smoking;</td>
<td></td>
</tr>
<tr>
<td>✷ identify priority groups within the target population and seek to reach priority patients not presenting at the surgery; and</td>
<td></td>
</tr>
<tr>
<td>✷ work with other individuals or agencies who can help with smoking cessation.</td>
<td></td>
</tr>
<tr>
<td><strong>Band 2: minimising ill-health and death among patients with CHD, raised blood pressure and stroke</strong></td>
<td></td>
</tr>
<tr>
<td>Practice requirements as Band 1 plus:</td>
<td></td>
</tr>
<tr>
<td>✷ carry out regular opportunistic checks to identify patients in the target population (those aged 15-74) with previously undiscovered raised blood pressure;</td>
<td></td>
</tr>
<tr>
<td>✷ maintain a register of patients with hypertension, coronary heart disease and stroke;</td>
<td></td>
</tr>
<tr>
<td>✷ manage those patients, by means of lifestyle interventions whenever appropriate, in line with modern medical opinion and practice guidelines; and</td>
<td></td>
</tr>
<tr>
<td>✷ work with other people and agencies to achieve these aims.</td>
<td></td>
</tr>
<tr>
<td><strong>Band 3: reducing the incidence of coronary heart disease and stroke</strong></td>
<td></td>
</tr>
<tr>
<td>Practice requirements as Band 2 plus:</td>
<td></td>
</tr>
<tr>
<td>✷ collect information on smoking, blood pressure, body mass index, alcohol use, family history;</td>
<td></td>
</tr>
<tr>
<td>✷ monitor diet and physical activity among patients aged 15-74 years;</td>
<td></td>
</tr>
<tr>
<td>✷ offer lifestyle advice, other interventions and follow up, taking into account modern medical opinion, local factors and practice guidelines;</td>
<td></td>
</tr>
<tr>
<td>✷ focus activity on priority groups and seek to reach patients who do not attend surgery; and</td>
<td></td>
</tr>
<tr>
<td>✷ work with other people and agencies.</td>
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Practices in each band are expected to meet defined levels of coverage in recording risk factors in their populations, which build up progressively year on year. General practitioners now receive fixed payments for their involvement in the health promotion scheme, rather than variable fees related to the number of special clinics provided.
CHD risk factors. This should have been accompanied by improved provision of advice about maintaining cardiac health, and better care for those patients with established CHD.

22. There is evidence that general practice-based programmes can achieve reductions in CHD risk levels, although the cost effectiveness of untargeted primary care screening and intervention programmes aimed at changing the behaviour of people before they have developed any indications of CHD is very questionable (Ref. 7). There is a lack of reliable information about the extent to which desirable service changes are actually being achieved. The data currently being collected on risk factors has to date been of limited value in assessing either improvement trends or district and practice population needs for enhanced preventive care. (Reporting requirements under the GP scheme are being revised.)

Community-wide programmes

23. Health promotion work associated with initiatives such as Health of the Nation takes place mainly in settings such as schools, hospitals, workplaces, housing estates and city centres. Health authorities are charged with forming health-promoting partnerships with local authorities and organisations such as local firms, and with working collaboratively to influence health through improvements in areas like road safety, diet and the amount of exercise taken.

24. Commissioners trying to meet a wide range of immediate demands for better care for people with conditions such as CHD face difficult choices when considering how much to spend on primary prevention. They should focus on interventions that are supported by substantive evidence of effectiveness, as in the case, say, of selected no-smoking policies (Ref. 8). In this instance, district programmes may include local media work backed by restrictions in smoking in public and other premises, schools programmes aimed in part at influencing parental behaviour, workplace clinics and quit-lines, and family doctor support
for people wishing to stop using tobacco. Particular groups and issues to target include smoking in pregnancy; older smokers (who in the short term stand most to gain from stopping smoking); and smoking among local decision takers and influencers.

25. But in an area such as primary prevention it would be inappropriate to suggest that decisions should be based exclusively on the limited research available, not least because not everything that is important is easily measurable. In establishing and/or supporting health promotion schemes, health authorities could be making important statements about their values and creating new opportunities for partnerships with other agencies. In doing so they may have to take a degree of risk in balancing the possible long-term gains to be derived from primary prevention aimed at changing lifestyles against the more immediate, and inevitably more certain, benefits of personal medical care.

Case finding, treatment, and secondary prevention in primary care

26. The quality of care received by most people with coronary heart disease depends, for much of the time, on the abilities of general medical practitioners and their primary care colleagues. It is normally through contacts with their family doctors that people with symptoms such as angina obtain access to hospital-based diagnostic services like exercise ECG and echocardiography (Table 2, overleaf) and are helped to cope with their condition. It is also frequently family doctors and practice nurses who, with or without support from hospital-based professionals, prescribe treatments and advise patients on the changes in behaviour that they may need to make in order to control their CHD symptoms and reduce heart attack risks.

27. Patients with established CHD derive much more absolute benefit from reductions in factors such as raised blood pressure or cholesterol levels than individuals with no evidence of the condition. Hence secondary prevention, whether achieved through lifestyle changes or medical interventions, is often more cost effective than primary prevention. There is good evidence that, used appropriately, medicines such as aspirin, beta-blockers, cholesterol lowering agents (Ref. 9), and ACE inhibitors (for heart failure) can achieve considerable long-term health gains. For instance, one recent study (Ref. 10) found that, among CHD patients aged up to 70 with a history of heart attacks, cholesterol-lowering drugs known as statins can reduce both mortality and the need for heart surgery by 30-40 per cent after six years of treatment. These gains were evenly shared between patients with a wide range of initial cholesterol levels.
This is often the best initial guide as to whether or not someone has coronary heart disease.

ECG
An electrocardiogram provides information about the electrical functioning of the heart. Its characteristic shape reflects the stages of each beat. A resting ECG is of value in diagnosing a heart attack while it is happening, but is often of little use in detecting non-acute CHD.

24-Hour ECGs
These are recorded by small machines strapped to the body over the course of a day. They reveal abnormalities which could well be missed in a conventional ECG test. (Twenty four hour recording of blood pressure is also now undertaken.)

Exercise ECGs (also known as stress testing)
The patient walks or runs on a treadmill while the ECG is recorded. The workload of the heart is gradually increased. This is likely to reveal characteristic signs of CHD.

Enzyme Tests
Damaged heart muscle releases characteristic enzymes. These can be used to identify the occurrence and measure the severity of heart attacks.

Echocardiography
Ultrasound imaging can track the flow of blood through the heart, revealing valve malfunctions and heart failure, in which there is reduced blood ejection from one or more of the heart chambers.

Nuclear Imaging
Radioactive isotopes can be injected and used to trace the movement of blood through the heart or its muscle walls. Areas which receive little or no blood show up clearly. Thallium scintigraphy is the most widely employed form of nuclear imaging in CHD. This only marginally invasive technique is more accurate than exercise ECG, but is not so widely accessible.

Coronary Angiography (also referred to as Coronary Arteriography and Cardiac Catheterisation)
In this invasive procedure a catheter is introduced into the arm or upper leg of the patient. With the help of x-ray camera imaging, it is then worked back up the artery into the aorta, and the entrances to the coronary arteries. An opaque dye is then injected, permitting imaging of any narrowing of the cardiac vessels or, in the case of catheterisation of the heart itself, internal heart structures. Angiography provides the most reliable information available on the need for revascularisation.

MRI Scanning
In the future, nuclear magnetic resonance imaging techniques may make non-invasive imaging of the coronary arteries more safely, and perhaps more cheaply, available. If so, this could open the way to finding more CHD cases which, although only mildly or moderately symptomatic, involve potentially life threatening damage to the heart arteries.
28. There is also evidence that fish oils and allied substances can have a significant cardio-protective effect (Ref. 11). Overall, improved secondary prevention might conservatively be expected to avoid or delay at least 5,000 CHD related deaths a year in England and Wales by the end of this century, over and above existing trends in HotN target age groups. However, unnecessary prescribing adds to costs and may cause harm, as indeed may ill-advised attempts at health education. Health authorities therefore have an important interest in working with clinicians to establish evidence-based prescribing and secondary prevention approaches.

29. Closer working between health authorities and primary and secondary care professionals is also needed to promote the most effective and efficient use of diagnostic resources, although there is as yet only limited information available about how commissioners can best encourage improved practices among the different sets of clinicians involved in the care of patients with CHD. There is evidence that, by itself, producing and distributing clinical guidelines/protocols – whether or not they are endorsed by opinion leaders – has relatively little effect on clinical behaviour. The establishment of local consensus as to what good practice involves must be backed by active programmes to monitor and audit service delivery standards and support the implementation of agreed good practices.

Emergency care for people with heart attacks

30. The survival chances of people suffering heart attacks may be improved by:

◆ education programmes designed to help them recognise heart attacks swiftly, and to call for assistance (normally by dialling 999) promptly;
◆ training members of the emergency services and other individuals in cardio-pulmonary resuscitation (CPR). CPR can help to keep people who
develop ventricular fibrillation alive for limited amounts of time, pending
the arrival of emergency services;

◆ rapid dispatch of ambulances or other emergency vehicles with
defibrillators (machines which deliver electrical shocks in order to restore a
normal heart beat – see also ‘ventricular fibrillation’ in the Glossary);

◆ swift patient assessment on arrival at hospital, leading when required to the
prompt administration of thrombolytic (clot dissolving) medicines; and

◆ appropriate aftercare for people who have had heart attacks.

31. There are unresolved questions relating to the optimal organisation and
cost-effectiveness of many of these service elements (Ref. 12), although
improved levels of performance are clearly achievable. The majority of
potentially avoidable heart attack deaths occur before hospital admission.
Faster emergency service responses, which could be achieved through systems
to prioritise 999 call ambulance dispatching (also referred to as criterion based
dispatch) are needed to reduce mortality further. It has recently been estimated
that some 3,000 deaths a year among people aged under 70 could be prevented if
everyone reporting a suspected heart attack were reached by a vehicle carrying a
defibrillator within eight minutes of making a 999 call (Ref. 13).

32. There is also debate about the desirability or otherwise of extending the
role of primary care practitioners and ambulance paramedics in using
thrombolytics. There is some evidence that increased rates of administration of
such drugs in community settings could further cut mortality, particularly in
isolated places (Ref. 14).

33. However, in the context of thrombolysis it should be recognised that the
NHS has already achieved significant health gains through better
hospital-based care. The available data indicate that, as compared with the start
of the 1980s, approximately 5,000 lives per year are being saved through the
prompt use of thrombolytics in heart attack cases. It is important to maintain
such advances and to improve on them where possible. Swifter, more effective,
in-hospital treatment of myocardial infarctions could save additional lives,
particularly among people in their 70s and above.

Hospital inpatient treatment for patients with coronary heart disease
34. The treatment of heart attacks accounts for only a limited proportion of
the CHD-related workload of hospitals (Exhibit 6). Other key elements
include:

◆ the medical treatment of episodes of severe or unstable angina;
◆ treating heart failure and its complications;
◆ treating disorders of the heart’s beating (arrhythmias); and
◆ the treatment of advanced CHD by cardiac surgeons and interventional
cardiologists (revascularisation).
35. The significance of heart failure as a cause of morbidity, mortality and hospital spending is often inadequately appreciated. So, too, on occasions is the importance of ensuring that good quality care is given to patients admitted with chest pains which are subsequently found not to be due to heart attacks. There is a danger of neglecting the needs of patients with transient angina, who are at high risk of cardiac events leading to death or permanent impairment.

36. However, the best-known forms of hospital treatment for people with advanced CHD symptoms are coronary artery bypass surgery (CABG) and coronary angioplasty (PTCA). These interventions are collectively termed revascularisation, because both restore blood supply to the heart muscle. In the case of CABG, cardiac surgeons (operating in tertiary centres) achieve this by grafting lengths of vein or artery to bypass sections which have become severely narrowed.

37. Coronary angioplasty, which is usually conducted by cardiologists working in tertiary centres with facilities for open heart surgery, involves inserting a special catheter into a narrowed cardiac artery and expanding it in order to increase the internal diameter. This is less hazardous, costly, and traumatic than CABG. But it achieves less successful outcomes. Hence it is normally best used in less serious (single vessel) cases of coronary artery disease and where it can significantly delay a patient’s need for a CABG.

38. Rates of revascularisation in England and Wales are lower than in most parts of western Europe and far lower than those recorded in the United States.
the costs and potential benefits of other opportunities for better care which exist for CHD patients, such as better secondary prevention and emergency care for people with heart attacks.

39. Data such as those contained in the UK Cardiac Surgical Register, coupled with DoH episode statistics, indicate that in 1995/96 the NHS in England and Wales will supply approximately 400 CABGs per million total population. The rate of NHS PTCAs provided annually is approximately half that – 200 per million. The private sector probably adds another 10 – 20 per cent to these figures. Yet these totals are still well short of annual targets such as the 600 per million CABGs and 400 per million angioplasties suggested by the British Cardiac Society (BCS). People in their 70s and above (the majority of whom are women) have particularly limited access to revascularisation in England and Wales, as compared to populations such as that of the United States. Also, as the Clinical Standards Advisory Group has shown in its studies of this area (Refs. 15, 16), there are substantial variations in local NHS intervention rates (Exhibit 8).

40. Districts and localities with unusually low revascularisation rates (including any still providing less than the 300 per million total population CABGs established as a national target in the 1980s) should consider as a matter of priority the case for improving supply. In other districts, where provision is already close to or above the current BCS revascularisation targets, it is
increasingly important to maximise the appropriateness of provision. This
should be done through an approach which combines an understanding of
individual patient concerns about risk and benefit ‘trade-offs’ with more
general locally agreed criteria for treatment eligibility.

41. Increased appropriateness might in part be achieved through more
effective case finding and assessment programmes (which require systematic
district approaches to issues such as access to coronary angiography) and
better prioritisation of waiting lists. (Under the Patient’s Charter, all waits for
CABG should now be no more than a year.) At present, some CHD patients
with less urgent needs may be being operated on before those at greater risk of
a life threatening event (Ref. 17).

42. Relief from angina and an improved quality of life are the most important
gains enjoyed by many patients receiving surgery for CHD. There is a degree
of uncertainty as to the extent to which operations such as CABGs are also life
saving (Refs. 18, 19, 20). This is in part because the available trial data (much of
which is now in danger of being outdated) applies mostly to populations
considered to have less urgent needs for surgery, among whom survival
benefits may be relatively limited. In the case of elective PTCA there are (as
yet) no proven survival benefits. Such observations underline the complexity of
the challenges health authorities responsible for allocating limited resources
face in determining the value of interventions such as CABGs and PTCAAs, as
against the benefits of expenditures on other potentially life enhancing services,
such as pharmaceutical care, health promotion, home nursing or cardiac
rehabilitation.

Exhibit 8
Rates of CABG and PTCA by District

There are substantial variations in local NHS intervention rates.

source: CSAG data for NHS operation rates in 41 English NHS districts, 1992/93. Note that the
CSAG data are quoted in rates per million population aged 25 and over, giving figures
around 30 per cent higher than the total population rates referred to in the text of this
report.
Cardiac rehabilitation

43. Cardiac rehabilitation encompasses a range of services for patients who have had a heart attack or a heart operation, or who have otherwise needed treatment for CHD. Especially when linked to good hospital discharge practices, appropriate cardiac rehabilitation can increase patients’ psychological well-being and help restore fitness and establish healthy lifestyles. Long-term survival prospects might also be enhanced (Refs. 21, 22, 23), although the mortality reduction benefits conferred by modern drug-based approaches to secondary prevention are likely to be far greater. Research evidence from Scotland indicates that appropriate rehabilitative care for people receiving treatment for angina can reduce demand for revascularisation (Ref. 24), and good post-discharge care for patients with heart failure may also generate psycho-social benefits and help to reduce subsequent hospital admission rates.

44. Cardiac rehabilitation and high quality discharge support are relatively inexpensive forms of care. But they have often been neglected areas, with services frequently depending on short-term charitable funding and the good-will of NHS staff. Managerial and clinical attention has tended to focus more on patients’ acute medical and surgical needs for high unit cost interventions.
Clearly identifiable health authority spending on primary prevention is low. Despite national policies such as those in the Health of the Nation programme, the commissioning of services aimed at primary prevention is sometimes seen as an unimportant, low status, aspect of health authorities’ work.

Many health authorities are already working to establish local agreements on good practice in areas such as prescribing medicines for the secondary prevention of coronary heart disease. But more effort is needed to ensure that best practices are consistently adopted.

Important improvements in coronary heart disease treatment and care have recently taken place. For example, at least 5,000 heart attack deaths a year are now being prevented through the prompt use of thrombolytic medicines, and the number of coronary artery bypass operations (CABGs) has grown fivefold during the last decade. But further service improvements are needed.
45. Health authorities have very large agendas to tackle and limited financial and human resources. They are having to face the immediate challenges of organisational merger while considering how best they can work to improve the health of their populations. And they need not only to achieve progress in each of the six medium-term national priority areas identified for the next three to five years (Box C) but also to be aware of local service requirements and preferences, and to promote developments accordingly.

46. Against this background it would be unrealistic to expect all authorities to address simultaneously all clinical areas, not least because detailed commissioning initiatives require significant resources. However, coronary heart disease (CHD) is a field in which, as pointed out at the beginning of this report, improved services could generate significant health gains in every part of England and Wales.

47. There is a powerful case, therefore, for arguing that the prevention and treatment of CHD ought already to be high on the action agendas of all health authorities. Audit Commission observations on current commissioning practices in each main type of CHD service (based on 1994/95 research in DHA/health agencies – see Appendix 1) are outlined below. Problem areas are identified, along with the types of solution that innovative commissioners are attempting to implement. Finally, some conclusions are drawn as to the general nature of the challenges facing unified health authorities.

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**Box C**

**NHS medium-term priorities**

Each health authority is required to:

- work towards the development of a primary care-led NHS, in which decisions about the purchasing and provision of healthcare are taken as close to patients as possible;
- in partnership with local authorities, purchase and monitor a comprehensive range of secure, residential, inpatient and community services, to enable people with mental illness to receive effective care and treatment in the most appropriate setting in accordance with their needs;
- improve the cost effectiveness of services throughout the NHS and thereby secure the greatest health gain from the resources available, through formulating decisions on the basis of appropriate evidence about clinical effectiveness;
- give greater voice and influence to users of NHS services and their carers in their own care, the development and definition of standards set for NHS services locally, and the development of NHS policy both locally and nationally;
- ensure, in collaboration with local authorities and other organisations, that integrated services are in place to meet needs for continuing healthcare and to allow elderly, disabled or vulnerable people to be supported in the community; and
- develop NHS organisations as good employers with particular reference to workforce planning, education and training, employment policy and practice, the development of teamwork, reward systems, staff utilisation and staff welfare.

*Source: Priorities and planning guidance for the NHS 1995/96*
Current practices

Primary prevention

48. District health authority outlays on Health Promotion Units (HPUs) constitute a very small part of their commissioning budgets – approximately 0.2-0.3 per cent of their total budgets in 1994 (Audit Commission study site data). Of this total, around one-third was typically allocated to projects related to the prevention of CHD. These findings are in line with national estimates indicating that only 0.1 per cent of total NHS resources are spent on health promotion, excluding those used for primary prevention in areas such as health visiting and general practice.

49. Districts commonly support a wide range of small-scale health promotion projects, many of them initiated through the enterprise of HPU staff. Audit Commission research has revealed clear examples of good practice in the relationships achieved between some HPU managers and health authorities (Box D, overleaf). But, perhaps in part because of uncertainties surrounding the issue of effectiveness, attitudes towards health promotion vary between and within authorities. Some chief executives and other senior health authority managers are deeply cynical about primary prevention and the objectives that underlie policies such as those in the Health of the Nation programme.

50. At worst this means that the commissioning of primary prevention services is a relatively neglected and low status activity, despite lip service being paid to it in public by senior health authority staff. In such cases, too little effort is put into the development of robust and coherent district health promotion strategies, and poor management systems and contracting arrangements are permitted to pass unchallenged. Poor working relationships between HPU staff and clinicians working elsewhere in the NHS may also be accepted, along with destructive conflicts between one-sided advocates of primary as opposed to secondary prevention. These can undermine awareness that both primary and secondary prevention require a balance of social and medical inputs, which should serve to complement each other.

51. Such problems need to be resolved. Even if health authorities consider that there is not at present a strong enough case for them to increase significantly the overall amount of NHS money allocated to primary CHD prevention, they have every reason to strive to ensure that maximum value is obtained from the amount that is already spent.

52. Other issues important to commissioning primary prevention include:

◆ the positioning of HPUs within the internal market framework, so that the advantages of competition between service providers and clear cut contracting relationships between providers and purchasers can best be balanced with health authorities’ own roles as health promoters;

◆ managing the GP health promotion scheme to permit productive use of the CHD risk factor data collected, and to encourage better co-ordination of effort between professionals such as cardiologists, HPU staff and primary care practitioners; and
Box D

Good practice in commissioning preventive care

Good practice in commissioning Health Promotion Unit (HPU) and allied services demands:

- the development of clear commissioning strategies which have a rational, evidence-based, focus on maximising the productivity of health promotion;
- contracts which avoid excessive detail but ensure that health promotion resources are used on projects that have been agreed by the health authority (in consultation with local stakeholders) and have defined targets and performance evaluation measures;
- regular, positive contacts between authority staff with responsibility for health promotion commissioning and HPU personnel, backed by support (‘championship’) for health promotion objectives from executive and non-executive authority members; and
- active commissioner-led co-ordination of all the various district approaches to health promotion and disease prevention, including the work of HPU staff, health visitors and general practitioners and practice nurses, together with that of hospital-based professionals.

Commissioners should be fully aware of the practical challenges facing the staff of HPUs, such as those which may be associated with operating as part of a large trust. There can be tension between managers’ concerns for the performance of their particular institution and health prevention professionals’ commitments to meeting district-wide needs. One approach to maximising value for money in health promotion is to concentrate on providing appropriate training for professionals, such as primary care practice staff or teachers who are in regular contact with large ‘target’ audiences, and/or reaching the latter by local media initiatives such as radio programmes on health topics. The Audit Commission found good examples of this type of activity in several of the districts visited, including Clwyd, Gloucester and Leicester.

East London and the City Health Authority’s corporate commitment to prevention has involved the establishment of a five year, ‘ring fenced’, health gain fund. Agencies proposing prevention projects in CHD and other fields enter bids for the resources it contains, which are evaluated by an independent panel on the basis of set criteria. This should provide a sound basis for contract term setting and performance evaluation.

The overall co-ordination of services for the primary and secondary prevention of CHD could significantly be improved in all districts, as in many cases could the extent of partnership and ‘healthy alliance’ between health authorities and local government. However, there are many individual examples of good co-operative practice. For example, in Birmingham the research team observed a hospital-based smoking reduction service provided through active collaboration between a consultant cardiologist and staff of an HPU.

- achieving adequate concentration on key policies such as the protection of NHS employees’ health (many health authorities are not regarded by their staff as being health-conscious employers) and community-wide smoking reduction.

53. In the instance of smoking, there is a wide range of positive opportunities for action available to health authorities (see paragraph 24). But not all treat
smoking reduction as a major health promotion priority. Audit Commission observations suggest that this may, perversely, be most frequently the case in areas of particularly high smoking and heart disease prevalence. During site interviews, some health authority staff in poorly performing districts argued that socially disadvantaged people ‘need’ to smoke and that cigarette advertising is still permitted by the Government. These are not acceptable excuses for local inaction.

Case finding, treatment, and secondary prevention in primary care

54. Many commissioning agencies have made attempts to promote good practice in areas such as the prescribing of medicines like beta-blockers (which can reduce blood pressure and protect the heart from excessive work) and/or the management of conditions like stable and unstable angina or atrial fibrillation. Typically these will have taken the form of preparing, with the help of selected primary and secondary care clinicians, guidelines which reflect the available evidence on treatment effectiveness and the optimal approaches available for secondary prevention.

55. In some districts (for example, Oxfordshire) such work has been of high standard, and has been linked to examinations of how improvements in practice can be established throughout the primary care system. This is, however, exceptional: work on protocol/guideline preparation often loses its impetus when it comes to the implementation stage, or when committed individuals change their jobs. In the main, the challenge of implementing desired developments in clinical practice has not yet been addressed convincingly by commissioners. In some instances public health staff with lead responsibilities in this area told the Audit Commission that they felt unable to do their jobs well because of inadequate time and resources. In the case of family practitioner prescribing, some individuals also believe that there is
presently inadequate incentive for districts as a whole to achieve the most
economic use of medicines possible.

56. Such problems are amplified by the fact that authorities have only limited
management information to support their commissioning decisions and
activities. For example, most lack detailed data on the numbers of diagnostic
tests for CHD and related conditions being provided for their populations,
and on patients’ experiences of receiving care for heart disorders. Even where
studies of service user views have been undertaken (for example, by quality
directorates) they are not always shared with staff members directly
responsible for functions such as contract negotiation.

57. However, leading edge commissioners are working to define more closely
the information they ideally require for CHD service commissioning, and the
ways in which it can be obtained. Some are also using computer models
(developed by the NHS in Yorkshire and by the Health Economics
Consortium at the University of York) to help establish their populations’
CHD service requirements, and to identify imbalances in existing patterns of
provision. The use of sophisticated software programmes to support needs
assessment and service specification activities could help to free public health
department resources for use in local good practice implementation
programmes and developments such as community-oriented primary care
(COPC – see Glossary).

Emergency care for people with heart attacks

58. Health authority staff with responsibilities in this area show good
awareness of the importance of issues such as ensuring that aspirin,
diamorphine, thrombolytic drugs and beta-blockers are used appropriately in
the care of patients with, or recovering from, acute infarctions. Documents
such as the guidelines on the treatment of myocardial infarction prepared by
the British Cardiac Society and the Royal College of Physicians of London
(Ref. 25) have also been widely read by commissioners. It is unquestionably
good practice for health authority staff to enter into positive, sustained,
dialogue about district care needs and standards with local cardiologists and
other NHS care providers and, on the basis of a sound understanding of
nationally agreed approaches, to establish ‘locally owned’ policies.

59. Clinical performance targets based on measures such as ‘door to needle’
times for treatment with thrombolytic drugs are increasingly being
incorporated into service specifications and contracts. But the productive use
of such information is a complex task. Even in the relatively straightforward
case of door to needle times there is a need for consistent data collection
methods and definitions. And it is important to be clear about the populations
included in any set of statistics. Quoted door to needle performance figures
often apply only to those patients being ‘fast tracked’ on admission (the
proportion of whom varies between sites) rather than the total number
admitted with what prove to be myocardial infarctions. Health authorities
need to know how well all ‘their’ patients are being treated, including those
suffering heart attacks while in hospital.
60. Additional questions about current practices exist in areas such as the use made of statistics on ambulance response times (known as ORCON data), and the advice given to members of the public as to what to do if they suspect a heart attack. Commissioners vary widely in the attention they have paid to tasks like establishing agreed, evidence-based, policies on cardio-pulmonary resuscitation (CPR) training or transmitting health messages such as ‘if in doubt, dial 999 first.’

**Hospital inpatient treatment for patients with coronary heart disease**

61. Since the inception of the recent NHS reforms much of the time of health authority staff has been spent on the annual contracting round, and in particular the purchasing (and in inner cities the rationalisation) of hospital services. But as yet most contracts still cover broad blocks of activity. They tend to have had relatively little influence on the quality of service received by patients with common cardiological diagnoses.

62. The NHS is moving towards costings based on Healthcare Resource Groups (HRGs), although only two of the nine districts visited by the Audit Commission during its research on this topic had made any significant progress towards the use of HRGs in cardiology. Developments in this area should give authorities and trusts a better understanding of the hospital costs of treating patients with heart conditions. But from a programme-wide perspective the value of this is likely to be constrained by a lack of corresponding figures on the costs and quality of community care. Lack of adequate information about the latter is a problem at all levels of the NHS.

63. Commissioning revascularisation services is a special case in that it normally involves discrete episodes of care conducted in specialised tertiary centres. This should permit precise contract terms to be set and may allow purchasers to change suppliers if they believe that cost and/or other service advantages will result for patients. However, the communities they serve also have an interest in maintaining the long-term financial stability and viability of tertiary centres providing high quality services. Health authorities should therefore be careful not to undermine such NHS assets through taking too parochial or short term a view of their objectives as might occur if, for instance, they rely inappropriately on using selective controls on the numbers of high unit cost operations to regulate their overall annual spending.

64. Some health authorities have very actively ‘shopped around’ for CABGs. This appears to have had good results for the districts concerned. But in assessing these it is important to be aware that NHS prices quoted for given procedures may not be directly comparable with each other (Exhibit 9, overleaf). The savings from buying more cheaply can be offset by hidden factors such as increased referring hospital re-admission rates. It is also the case that commissioners without tertiary care providers within their boundaries can most easily adopt such a strategy without fear of direct cost offsets elsewhere.
65. One form of innovative commissioning practice which may enable health authorities (and participating fundholders) to maximise the benefits of price and quality sensitive local purchasing of tertiary care is to encourage district hospital specialists to play a central part in purchasing tertiary services (Box E). But even in the high profile area of revascularisation some health authorities have as yet made little positive impact on service developments.

66. Examples of specific issues relating to revascularisation about which all health commissioners working at district level need to establish clear policies include:

- **coronary angiography.** Coronary angiography is the gateway to revascularisation. Good access to this service is therefore important. However, the establishment of new district hospital-based facilities for coronary angiography is not always cost effective. Health authorities, working with fundholding and non fundholding general practitioners and with trusts, should be explicit about which service developments they wish to fund. They also need to define the criteria by which they judge safety and other aspects of the clinical quality of coronary angiography, PTCA and CABG. The number of interventions conducted by each individual, team and unit is one factor to be considered, although greater volume is not automatically linked to better care (Ref. 26);
appropriateness and equity. Even after coronary angiography, determining which patients should undergo revascularisation is not always a clear cut, simple process. Individual expectations and attitudes must of course be taken into account, along with clinical indicators of need. But without clear guidelines on when patients should receive a CABG or PTCA service volume requirements cannot satisfactorily be estimated, and both commissioners and providers may be open to charges of bias in relation to patients’ sex, age, race or social status (Refs. 27, 28, 29). As yet few health authorities have invested in developing locally agreed appropriateness criteria for revascularisation. Nor, despite published commitments to equity, have most authorities established reliable systems for monitoring geographical or other patterns of revascularisation provision; and

waiting times. Commissioners have, through the Patient’s Charter, a responsibility to monitor waiting times for revascularisation. From April 1995 these should not have exceeded one year from the decision to intervene. (The British Cardiac Society has pointed out that, before this stage, CHD patients may also have to wait to see a specialist and wait again for diagnostic intervention, such as a stress test and an angiogram. It has therefore proposed more stringent waiting time targets – one month for an initial consultation, three months for diagnostic tests and six months for treatment.)

**Box E**

**Involving hospital clinicians in commissioning CHD services**

District hospital-based clinicians are often ideally placed to act as ‘expert customers’ in purchasing tertiary care on behalf of their local populations. They have both expertise and opportunities to judge the quality of services provided by highly specialised units which may be unavailable to either health authority staff or fundholding general practitioners.

The active involvement of district hospital consultants in purchasing services such as revascularisation is therefore vital. The most comprehensive contract for the provision of revascularisation during the Audit Commission’s research on commissioning for cardiac health had been negotiated by two DGH cardiologists acting on behalf of their health authority (Clwyd) which had allocated a block sum for the purchase of additional interventions. Similar models could also be used to facilitate optimally informed fundholder purchasing of tertiary services.

In the complex area of CHD diagnosis and care close co-operation between secondary and tertiary care level specialists is often needed, particularly in the treatment of urgent cases. District hospital cardiologists may also value opportunities to maintain and update their skills in areas such as conducting coronary angiographies, through working in tertiary units on a regular basis. Such arrangements are necessary and desirable. Greater involvement of district clinicians in making purchasing decisions need not threaten constructive partnerships with tertiary providers. It should help clinicians working in district hospitals to establish clear ideas about which specialist units provide the best value for money service when they refer NHS patients to them, and to challenge ‘cosy’ relationships.

**One in four women dies from heart disease.**

*British Heart Foundation*
Cardiac rehabilitation

67. The value of rehabilitative care for CHD patients has recently received increased recognition from both clinicians and service managers. Organisations such as the British Heart Foundation have provided ‘seed-corn’ grants for the establishment of cardiac rehabilitation services, and during Audit Commission site visits many NHS staff with cardiac commissioning responsibilities expressed a desire for service improvements in this area.

68. Yet the provision of cardiac rehabilitation and related service quality issues is still a neglected topic in some districts and trusts. Examples of poor or questionable practice observed during site visits include:

- arbitrary age cut-offs on service access;
- failures to arrange local services for patients receiving surgery in out-of-district centres;
- lack of any provision for cardiac patients other than those recovering from myocardial infarctions or bypass surgery; and
- recurrent funding uncertainties for services established on ‘soft’ grants.

69. Even where health authorities have taken action to improve cardiac rehabilitation through contract agreements or special funding arrangements, the quality of service specification tends to be inadequate. Often too little attention is paid to defining exactly what forms of rehabilitative care and support are needed for which patients. Problems of this type once again underline the complexity of the task facing healthcare commissioners. The patchy development of cardiac rehabilitation and appropriate discharge care arrangements also suggests that health authorities are often in danger of being more sensitive to the pressures on them to increase the quantity of clinical activity than they are to the need to improve other aspects of service quality.

The challenges of unified commissioning

70. When the National Audit Office reviewed CHD prevention and treatment in the late 1980s (Ref. 30) it found a lack of quantified performance targets and other serious management weaknesses in relation to health promotion. It also pointed to an under-provision of coronary bypass surgery and problems with patient access to specialised cardiological and diagnostic investigation.

71. Since then these issues have been addressed at both national and district levels. Tangible service improvements have resulted and CHD death rates among younger people continue to fall. This NHS success is to be welcomed and deserves recognition. Yet the findings reported above make it clear that there are still many ways in which CHD prevention and treatment services could be enhanced. Tackling the specific challenges of improved CHD management will also help unified health authorities improve their general performance. If they are to fulfil the promise of commissioning, and contribute significantly to NHS progress during the second half of the 1990s,
they will have to overcome a range of common problems which at present restrict their ability to change local services for the better. These include:

- **limited data on patterns of service provision.** This applies particularly to the co-ordination of different forms of care delivered in separate hospital, general practice and other settings, including patients’ homes;

- **limited data on service user needs and priorities.** Even in authorities that have invested in studies of service user experiences and preferences there are difficulties in drawing together such information from various departments and using it to guide commissioning/contracting;

- **limited evidence on the effectiveness of prevention and treatment.** Many forms of care are not fully evaluated (Box F). Even where overall effectiveness evidence is available, it can be difficult to apply appropriately to individual cases;

- **lack of clear criteria for making resource allocation decisions.** Balancing the competing needs of different individuals and groups in a fair and acceptable way requires not just measures of ‘objective need’, but also understanding the values and beliefs of those locally involved. A decision which is right for one community is not necessarily applicable to another;

- **potential conflicts between ‘top down’ priorities and those of devolved ‘primary care-led’ decision making systems.** Commissioners with limited resources may have to balance investments in service improvements desired by local practitioners and their patients with those aimed at meeting national performance targets; and

- **the inherent difficulty of improving the co-ordination of primary, secondary and tertiary care, and promoting good clinical practice.** There is no strong base of knowledge on how best to change clinical behaviour. The attainment of district service goals of this type is likely to require a range of marketing, public affairs, leadership and indirect quality management skills which most health authorities do not fully possess.

**Box F**

*Research priorities*

The information available to commissioners about CHD service needs and effectiveness is far from complete. Such problems are reflected in health authorities’ concerns about issues such as the lack of ‘instruments’ available for estimating the CHD care requirements of populations aged over 75, and the uncertainties which exist over balancing preventive service investments and the provision of treatments such as CABGs. Indeed, the present data are not sufficient even to enable commissioners accurately to estimate the life saving and other benefits derived from their investments in surgery for CHD, or to compare the health gains from increasing expenditures in this or alternative forms of medical or interventional CHD treatment.

The importance of establishing a better basis for evidence-based CHD service commissioning and delivery is recognised in the NHS research and development programme. Assessment of the relative benefits of CABG versus angioplasty versus medical management was recently ranked as the first priority of the programme’s Standing Group on Health Technology Assessment. The development of better pre-intervention methods for predicting the benefits of revascularisation in patients with CHD was ranked fourth out of a total of over a thousand possible priority topics originally submitted to the Group.
Health authorities face a variety of complex challenges in commissioning services for the prevention and treatment of coronary heart disease (CHD). These relate both to general factors such as their responsibility to support the development of a primary care-led NHS, and specific ones such as weaknesses in the effectiveness evidence relating to some aspects of cardiac care.

The success of commissioning depends critically on the ability of health authorities to build and maintain trust and partnerships with patients and clinicians working in all NHS settings, as well with local government agencies and the management of NHS trusts.

In the next few years, secondary prevention offers a particularly important route towards achieving the CHD mortality reductions that health authorities need to meet or exceed their health gain targets. Health authorities must also ensure that CHD patients from all social, racial, sex and age groups have adequate access to sophisticated treatments such as coronary artery bypass surgery.

3 Commissioning for Better Cardiac Health
72. There are no instant solutions to the problems and challenges faced by health authorities. Suggestions that they can ensure progress in the quality of district services, and hence the health of their populations, simply by introducing measures such as ‘protocol-based purchasing’ (in which commissioning relates to precisely defined packages of care for specific types of case) or by incorporating more stringent requirements in their contracts with providers, ignore the reality of the situation.

73. Chief executives of health authorities are accountable for NHS service standards in their districts. But they do not provide health services themselves. Nor even do they purchase all of them. In a ‘primary care-led’ system, concerned with delivering professional services to diverse populations in a wide range of settings, commissioners cannot discharge their responsibilities through the exercise of traditional ‘top-down’ administrative authority. They must use influence, persuasive argument, and objective information to back their direct purchasing powers. Their success depends critically on building up and maintaining trust and partnership with patients and clinicians working in all NHS settings, as well with local government agencies and the boards and managers of NHS Trusts.

Improved integration

74. In order to facilitate better integrated and more appropriate patterns of care, health authorities need themselves to work in an integrated, optimally effective way. This in part depends on good internal management arrangements, designed to ensure that there is a continuum of well aligned personal and group effort within commissioning organisations. Activities such as needs assessment, service specification, contract negotiation, quality assessment and good clinical practice development should link together in a fully co-ordinated way (Exhibit 10, overleaf). Similarly, health authorities’ efforts to meet general national objectives should be taken forward in every condition or service specific project/programme.

75. Most, if not all, health authorities have recognised that they should work in an internally integrated manner. But they still have some way to go in areas such as establishing adequate information systems, developing organisation-wide approaches to quality improvement, providing staff training for effective project management, and ensuring that the activities of departments such as public health complement and support those of the rest of the authority as effectively as possible. They also need to improve their performance in communicating with external audiences, both to understand local requirements better and to help shape informed service expectations.

Balanced commissioning activity

76. Many health authorities across England and Wales have already put considerable effort into developing their approaches to the prevention and treatment of coronary heart disease (CHD), and can point to instances of service improvement attributable to their intervention. But in practice the daily work of health authority staff is often dominated by the demands of the annual contracting cycle, and the provision of inpatient care. This balance of
commissioning activity can be questioned not least because, in the context of CHD, outlays are evenly divided between hospital and primary and community services (see paragraph 3). In terms of further health gains to be made from new service improvements, the case for shifting the focus of commissioner attention more towards preventive forms of care requires careful examination (Refs. 31, 32, 33).

77. In the immediate future better use of secondary prevention techniques offers a particularly important route towards achieving the mortality reductions that health authorities require in order to meet or exceed their HotN targets (Exhibit 11, overleaf). Commissioners should aim to ensure that such opportunities are fully exploited in their districts. They should also consider closely the extent (and likely cost) of the health gains to be derived from improvements in services for people suffering heart attacks, and from primary prevention programmes.

78. However, recognition of the current need to re-align the balance of commissioning activity must not be taken to imply that commissioners should divert resources away from areas such as the provision of coronary artery bypasses, or fail to invest more money to satisfy unmet needs for revascularisation. Under-provision of either interventional cardiology or cardiac surgery is likely to cause concern and distrust among healthcare providers and service users alike, rather than promoting informed agreement and concerted action on the best overall ways to reduce the pain, disability and death caused by CHD.

Recommendations for health authority boards

79. Health authorities with strictly limited resources face complex challenges in commissioning services for the prevention and treatment of coronary heart disease. A list of key questions for board members to address is provided at the end of this chapter. This report’s main recommendations for commissioning action are summarised below under the following five headings:

- strengthened health promotion (primary prevention) commissioning;
- district strategies for CHD diagnosis, treatment and secondary prevention;
- adequate and appropriate tertiary services;
- contracting for balanced and efficient care; and
- effective communication about cardiac health.
Strengthened health promotion (primary prevention) commissioning

Health authorities are in a unique position to appreciate the potential importance of primary prevention. The problems inherent in demonstrating the effectiveness of some forms of health promotion should not discourage commissioners from taking action in those areas where there are reasonable grounds for it. These include:

- raising the status of health promotion commissioning within health authorities, and ensuring that it is accepted as an important activity;
- establishing more rigorous contracting and managerial arrangements, so that the goals and costs of each programme being commissioned are clearly defined, and provider performance is monitored and questioned in an informed way. As in any other area, attention needs to be paid to demonstrating that health promotion activities are wherever possible based on research evidence, and that resources are being used efficiently. The supply of services should be open to contest, even in those instances where

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*Exhibit 10*

**The commissioning process**

Needs assessment, service specification, contract negotiation, quality assessment and good clinical practice development should link together in a fully co-ordinated way.
Exhibit 11
Coronary heart disease service improvement options – an overview

In the immediate future, better use of secondary prevention techniques offers a particularly important route towards achieving CHD mortality reductions.

<table>
<thead>
<tr>
<th>Potential to further reduce age specific disability rates and improve quality of life</th>
<th>Potential to secure life year gains</th>
<th>Proven effectiveness of available techniques</th>
<th>Cost of services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking reduction</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Cholesterol level reduction (diet)</td>
<td>Moderate / high</td>
<td>Moderate / high</td>
<td>Low</td>
</tr>
<tr>
<td>Increased exercise</td>
<td>Moderate / high</td>
<td>Moderate / high</td>
<td>Low</td>
</tr>
<tr>
<td>Blood pressure reduction</td>
<td>Moderate / high</td>
<td>Moderate / high</td>
<td>Low</td>
</tr>
<tr>
<td>Other medical treatments (eg, aspirin)</td>
<td>Low ?</td>
<td>Low ?</td>
<td>Low / moderate</td>
</tr>
<tr>
<td>Cardiac rehabilitation and post-hospital support</td>
<td>Low</td>
<td>Low</td>
<td>Low / moderate</td>
</tr>
<tr>
<td>Patient and public education</td>
<td>Low</td>
<td>Low</td>
<td>Low / moderate</td>
</tr>
<tr>
<td>CPR training</td>
<td>Low</td>
<td>Low</td>
<td>Low / moderate</td>
</tr>
<tr>
<td>Prioritised ambulance dispatch</td>
<td>Moderate / high</td>
<td>Moderate / high</td>
<td>High</td>
</tr>
<tr>
<td>Aspirin and thrombolysis</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate to high</td>
</tr>
<tr>
<td>Improved access to exercise, ECG, and echocardiography</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Nuclear imaging</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Coronary angiography</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Rapid access assessment clinics</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate to high</td>
</tr>
<tr>
<td>PTCA</td>
<td>Moderate / high</td>
<td>High</td>
<td>Moderate to high</td>
</tr>
<tr>
<td>CABG</td>
<td>Moderate</td>
<td>High</td>
<td>Moderate to high</td>
</tr>
</tbody>
</table>

Notes:
1. Diet is a complex issue – CHD rates are influenced by both harmful factors such as saturated animal fat consumption and protective factors such as consumption of fresh fruit and vegetables and fish oils.
2. Also important in reducing stroke rates.
3. Depends on the choices made. Better use of existing resources is a low-cost option.
4. The contribution of diagnostic services to reduced mortality and morbidity is indirect, but nevertheless significant.
authorities retain Health Promotion Units (HPUs) as parts of their own structures;

- **improving co-operation between HPU, primary care and hospital staff, and better co-ordination of primary and secondary prevention programmes.** Opportunities for more effective joint working within the NHS, as well as between it and other services, are sometimes neglected. Damaging conflicts between proponents of primary prevention based on social interventions and clinicians more focused on biomedical approaches need to be resolved. Primary and secondary CHD prevention programmes should be regarded as complementary to one another, and be run in the most economically effective ways possible; and

- **taking positive action to protect the health of NHS employees.** If health authorities, trusts and practices do not show exemplary initiative in acting as health promoting employers, the ability of health commissioners to act as an advocate for changes elsewhere in the community could be undermined.

‘Health authorities are in a unique position to appreciate the potential importance of primary prevention.’
Section 1: District strategies for CHD diagnosis, treatment and secondary prevention

81. Health authorities have a central role to play in promoting appropriate patterns of care in general practice, which should be well co-ordinated with additional services provided in other community and hospital settings. Effective primary care development will be central to the success or failure of unified commissioning during the remainder of the 1990s. It will also be vital for the practical realisation of health gain opportunities such as those for reducing the mortality caused by CHD through better secondary prevention.

82. Tertiary cardiac centres can make important contributions to clinical service development in the districts they serve. But the challenges of care delivery in the area of CHD exist on an enormous scale, even compared with

---

**Recommendations – health promotion**

1. Health authority board members should be satisfied that challenging local CHD risk reduction and health improvement targets have been set, in line with national goals. They should also be satisfied that the senior managers of their authorities are fully committed to attaining them.

2. Health authorities should have a co-ordinated commissioning approach to CHD prevention in primary, secondary and tertiary care settings. This involves ensuring that:
   - services provided by HPUs/HP agencies complement and support those supplied in other NHS settings; and
   - data reported by general practitioners is used as productively as possible in the integrated commissioning of all district health promotion activities.

3. Board members should be satisfied that their authorities are working as productively as possible with local government and other non-NHS agencies to establish rationally based community-wide health improvement programmes which link primary and secondary prevention goals.

4. Health authorities should develop themselves – and the NHS organisations they purchase from – as ‘healthy employers’. They should have a published method of assessing their performance in this area, alongside their attainment of their broader CHD prevention goals.
those associated with, say, the major cancers. At any one time between one and two million individuals require medical treatment for complaints such as angina and heart failure, in addition to which there many more asymptomatic patients with a past history of heart attacks. The co-ordination of clinical services for populations of this size requires a strong local focus, with district hospital specialists acting to support general practice-based professionals across traditional primary and secondary care boundaries.

### Recommendations – district strategies for CHD diagnosis, treatment and secondary prevention

5. All districts require comprehensive CHD strategies, which have been formally adopted by the health authority. These strategies and the priorities identified in them should be:
- formulated with the involvement of patients, carers and professionals, and have been agreed by local cardiologists and general practitioners;
- consistent with national policies such as those for a primary care-led NHS, and the achievement of evidence-based clinical care; and
- backed by comprehensive data on the CHD services available to the local population.

6. The arrangements to be made for implementing good clinical and allied working practices should be specified. The post-holders with responsibility for such work should be identified, and board members should be satisfied that sufficient resources are available to achieve their commissioning aims in key areas such as general practice/primary care development.

7. Health authority board members should be satisfied that their district strategies address adequately all the key areas of CHD clinical care. These include:
- the appropriate use of medicines such as aspirin, beta-blockers, ACE inhibitors and cholesterol lowering agents;
- access to diagnostic services such as exercise ECG, echocardiography and coronary angiography;
- the optimal organisation of services for the emergency treatment of patients with heart attacks; and
- the special CHD care needs of population groups such as people with South Asian origins and older women.
Adequate and appropriate tertiary services

83. The provision of CABGs and PTCAs is a vital component of good quality healthcare for people with advanced CHD. Health authorities should monitor the rates of revascularisation supplied to all sections of their resident populations and take action to ensure adequate, cost-effective and patient focused provision within the resources available to them. Attention should be paid to defining and meeting the revascularisation needs of NHS patients in their 70s and 80s, as well as those of younger people.

84. Rising patient and professional expectations are likely to increase further the demand for PTCAs and CABGs. But concerns about the provision of revascularisation must not undermine health authority awareness of other items on the cardiac health commissioning agenda. They should be fully aware of the evidence relating to the effectiveness of all forms of intervention available and try to ensure that their limited resources are deployed to achieve the maximum possible overall benefit for their communities. Health authorities need to communicate both to the public and their clinical communities the value and the limitations of revascularisation techniques.

Recommendations – tertiary services

9 Health authority members should be satisfied that their authorities have rational, evidence-based, revascularisation policies which ensure the equitable provision of services in accordance with need. Provision should be monitored by geographical locality and by patient age, sex, ethnicity and social status.

10 Clinical policies on the appropriate use of diagnostic procedures such as coronary angiography and the criteria for accepting patients for PTCA or CABG should be locally agreed and monitored, and used as a basis for evaluating waiting list prioritisation procedures.
Contracting for balanced and efficient care

85. Contracting is a major part in the overall commissioning process and takes up a substantial proportion of health authority staff time. It is therefore important to establish good practices. Contracting should not be conducted merely on a fragmented, provider-by-provider, basis, or in a manner contrary to policy objectives such as maximising informed patient and practitioner choice.

86. In some districts, the effect of past regional policies for the purchase of tertiary cardiac care, coupled with the existence of block contracts for the purchase of general medicine (including cardiology), has meant that local contracting has as yet had little impact on the quality of cardiac care. But there are now important district-level opportunities for GPs and other primary care professionals, such as practice nurses and managers, to work with hospital and health authority staff to specify, contract for and monitor CHD programmes.

Recommendations – contracting

11 Health authority board members should be satisfied that contracting for CHD services is conducted in an integrated way which fully complements the implementation of district CHD prevention and treatment strategies.

12 Health authority board and staff members should work to ensure that good contracting practices are employed in their districts. Priorities include:

◆ ensuring that appropriate progress is being made in the introduction of sub-specialty costing (Costing for Contracting) in cardiology and cardiac surgery;

◆ working with fundholding and other GPs to develop agreed approaches to contracting for secondary level CHD services;

◆ enabling district cardiologists to make a full contribution to contracting for tertiary services;

◆ negotiating contract term duration to reflect authorities’ strategic thinking on service development. Commissioners need to be clear about the extent to which they intend the provision of given services to be subject to contestability (through short contract terms) and the extent to which they wish to help develop providers through a more stable environment based on longer term agreements; and

◆ checking the total prices paid for specific procedures and comparing them with those obtainable from alternative high quality suppliers.
Effective communication about cardiac health

Enhanced effort and competence in the area of ‘public (health) affairs’ has the potential to contribute to primary and secondary CHD prevention, and the appropriate use of diagnostic and tertiary care provisions. Communicating about cardiac health involves not only listening to local voices and giving service users greater influence over what is provided, but also the expression of health authorities’ own views and values. Commissioner-led public affairs work can play an active part in shaping patterns of healthcare expectation and demand, and promoting healthy behaviours. But it remains a relatively neglected area in many districts, in part because health authority managers may fear that if they initiate public debate on service development they will be blamed for any negative publicity which results.

Recommendations – communications

14 Health authorities should have agreed, pro-active, public health communication strategies covering all areas, including cardiac care

15 Board members should be satisfied that the senior managers of the authority are fully committed to the successful implementation of its external communication programme, and are confident of the board’s support when they open debates about health matters in ways consistent with local policies.
Conclusion – an end to the CHD pandemic

88. Health authorities work in an environment bounded both by national policies and the local needs, expectations and abilities of service users and providers. Their efforts alone cannot improve the nation’s health. But within the NHS framework now established there are many positive opportunities for healthcare commissioners to work with patients, carers, clinicians and service managers to achieve more effective CHD prevention, treatment and care.

89. At present it appears unlikely that symptomatic coronary heart disease will ever be completely eradicated, even within the population of working age. But if health authorities use their influence strategically to combine the delivery of medical and allied care which is responsive to individual needs with population-based approaches to disease avoidance and health improvement, significant new falls in sickness and death rates will be achieved. Combined with the positive progress already made since the mid 1970s, this would effectively bring to an end the pandemic of CHD which has caused millions of premature deaths in England and Wales during the twentieth century. It should also help to reduce the differences in premature mortality and disabling morbidity rates that exist between the social classes and other groupings within the community. There is therefore good reason to recommend that all unified health authorities should make sustained investments to establish and implement comprehensive commissioning programmes for effective, high-quality, coronary heart disease management.

‘...within the NHS framework now established there are many positive opportunities for healthcare commissioners to work with patients, carers, clinicians and service managers to achieve more effective CHD prevention, treatment and care.’
### Questions for Board Members of Unified Commissioning Agencies/Health Authorities

To what extent are you confident that the statements below apply to your health authority?

<table>
<thead>
<tr>
<th>1</th>
<th>This health authority has a good understanding of the needs of local people with CHD. We have sound information about their experiences in receiving treatment, and their service preferences. This is used to guide our service contracting/commissioning.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The health authority has a comprehensive, formally agreed, CHD service development strategy, which is being actively implemented.</td>
</tr>
<tr>
<td>3</td>
<td>We know what information we need to commission appropriate services for the prevention and treatment of CHD, and have made the best possible progress towards obtaining the required data.</td>
</tr>
<tr>
<td>4</td>
<td>Commissioning services for the prevention of coronary heart disease is seen as an important task by the board of this authority – we have given the topic close attention and have appropriate management arrangements in this area.</td>
</tr>
<tr>
<td>5</td>
<td>Helping people to stop smoking is one of the authority’s main priorities: we have an evidence based, targeted, programme which is being implemented.</td>
</tr>
<tr>
<td>6</td>
<td>Where heart disease and smoking are concerned, this health authority and the trusts it purchases services from are exemplary ‘healthy employers’.</td>
</tr>
<tr>
<td>7</td>
<td>There are strong ‘healthy alliances’ between the health authority and local government agencies, which focus on effective ways to prevent CHD. We work together well at both member and staff levels.</td>
</tr>
<tr>
<td>8</td>
<td>The authority is making constructive use of the information on CHD risk factors being produced by each GP practice.</td>
</tr>
<tr>
<td>9</td>
<td>The authority has assured itself that Health Promotion Unit staff and primary and secondary care clinicians have achieved good working relationships.</td>
</tr>
<tr>
<td>10</td>
<td>The health authority has a comprehensive strategy for contributing to the development of primary care in the district, and has evidence that positive progress is being made with respect to its targets for CHD and related care.</td>
</tr>
<tr>
<td>11</td>
<td>We have locally agreed, evidence-based, guidelines on the use of medicines such as aspirin, ACE inhibitors, beta-blockers and cholesterol lowering agents in CHD and heart failure.</td>
</tr>
<tr>
<td>12</td>
<td>The authority is making the fullest possible use of PACT data, and is effectively supporting the implementation of locally agreed good prescribing.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>13</td>
<td>GPs in all parts of the district are satisfied with the provision of diagnostic services such as exercise ECG and echocardiography.</td>
</tr>
<tr>
<td>14</td>
<td>The provision of clinical services for people with CHD is well co-ordinated – there is good communication between cardiologists, GPs and other community based professionals in every part of the district.</td>
</tr>
<tr>
<td>15</td>
<td>This health authority has given close attention to the quality of care received by patients with heart failure in both hospital and community settings.</td>
</tr>
<tr>
<td>16</td>
<td>All local GPs are able to make appropriate use of rapid access clinics for people with newly diagnosed and/or deteriorating angina.</td>
</tr>
<tr>
<td>17</td>
<td>There are locally agreed guidelines on the pre-hospital care of patients with suspected heart attacks. The authority is monitoring ambulance and allied care standards, through the ORCON data and consultation with hospital and other NHS professionals.</td>
</tr>
<tr>
<td>18</td>
<td>Hospital treatment of all patients with heart attacks is monitored by this authority to ensure that standards for timely, appropriate, treatment are met.</td>
</tr>
<tr>
<td>19</td>
<td>This authority has developed clear, locally agreed, policies on which CHD patients should receive coronary angiography.</td>
</tr>
<tr>
<td>20</td>
<td>The health authority has evidence that patients waiting for revascularisation receive treatment in accordance with the urgency of their needs.</td>
</tr>
<tr>
<td>21</td>
<td>Local clinicians are closely involved in contracting for tertiary level CHD services.</td>
</tr>
<tr>
<td>22</td>
<td>The authority is working closely with local fundholders to promote good value-for-money secondary and tertiary care for patients with CHD.</td>
</tr>
<tr>
<td>23</td>
<td>The provision of PTCA and CABG is monitored in this district to ensure the adequacy and equity of patient access by age, sex and social factors.</td>
</tr>
<tr>
<td>24</td>
<td>The contracting/commissioning process gives us a good understanding of the volumes, costs and quality of all the hospital care being received by patients with CHD and heart failure.</td>
</tr>
<tr>
<td>25</td>
<td>The authority has clearly specified the rehabilitation and hospital discharge care it expects people with CHD-related conditions to receive, and is monitoring the quality of service delivered.</td>
</tr>
</tbody>
</table>
Glossary

**ACE inhibitors**
A class of drug that reduces blood pressure by inhibiting the action of certain circulating hormones which are raised in heart failure.

**Acute myocardial infarction**
Heart attack. Refers to the death of heart muscle (myocardium) which follows coronary thrombosis, the formation of blood clots in the coronary arteries.

**Angina, angina pectoris**
Chest pain, usually due to insufficient blood supply to the heart muscle.

**Angiogram**
See ‘coronary angiogram’.

**Angioplasty**
See ‘PTCA’.

**Arrhythmia**
Sometimes called dysrhythmia. Abnormal rhythm of the heart.

**Artery**
A blood vessel that carries oxygen-rich blood.

**Atheroma**
Deposits of fatty material and cholesterol inside the walls of blood vessels.

**Atherosclerosis**
Atheroma with fibrous tissue and sometimes calcium deposits.

**Atrial fibrillation**
Very rapid and irregular electrical activity in the atria, the receiving chambers of the heart.

**CABG**
Coronary artery bypass grafting. Open-heart operation in which a fresh blood supply is brought to the heart muscle using arteries within the chest, or segments of vein from the leg.

**Cardiac arrest**
Complete cessation of the heart beat.

**Cardio-pulmonary resuscitation (CPR)**
The techniques of treating arrest of the heart by artificial respiration and cardiac compression.

**Catheter, cardiac**
A long, narrow tube which, when passed through the veins or arteries, is used for measuring pressures in the heart, or injecting substances opaque to x-ray for outlining the heart and blood vessels.

**Catheterisation laboratory**
The x-ray laboratory in which a coronary angiogram (qv) is obtained. Requires specialised x-ray equipment.
Community oriented primary care

Primary care managed in a way which combines individual care with practice population based insights into care needs and health gain maximisation.

Cholesterol

A substance found in many foods and in all cells. Most of the cholesterol in the body is manufactured in the liver. An important constituent of atheroma.

Coronary angiogram

Also referred to as coronary arteriograms or 'catheterisations'. The procedure through which an image of the anatomy of the coronary arteries can be obtained. A delicate tube (catheter) is passed through the blood vessels from a small puncture site in the arm or the leg, under local anaesthetic. When placed in the orifice of the coronary arteries, x-ray opaque fluid is injected to outline the vessels, showing up areas of narrowing (stenoses) due to atheroma. This test is an essential pre-requisite for CABG or PTCA (qv).

Coronary arteries

The arteries that supply the heart muscle with blood; they arise from the aorta.

Coronary artery disease, coronary heart disease

The result of atheroma or ‘furring up’ of the coronary arteries which supply oxygen to the heart muscle. Results in angina, heart attack, heart failure, and/or sudden death.

Criterion based dispatch systems (CBD)

Systems which permit the prioritisation of 999 calls by specially trained operators using computer-based protocols. This allows heart attack cases to be reached more rapidly.

Defibrillator

An instrument for delivering an electric shock, used to terminate fibrillation (qv).

ECG

Electrocardiogram – measurement of the heart’s electrical activity.

Echocardiogram

An image of the heart using ultrasound. The machines now used to obtain the images are more portable and cheaper than x-ray installations.

Embolism

The migration through the bloodstream of a clot from one part of the body to another where it causes an occlusion.
| **Exercise electrocardiogram (exercise ECG)** | Stress technique usually performed by asking the patient to walk on a treadmill or cycle on a stationary bicycle while the electrical activity of the heart is monitored. |
| **Fast tracking** | Rapid treatment of patients arriving at hospital with typical symptoms of an acute myocardial infarction. |
| **Fibrillation** | Fast, irregular, electrical activity of the atria or ventricles. |
| **Heart failure** | A condition in which the pumping action of the heart is inadequate. It can result in the accumulation of fluid in the body and congestion of the lungs. |
| **High density lipoprotein** | A complex of fat and protein that may serve to remove cholesterol from the tissues. Sometimes described as the ‘good’ form of cholesterol. |
| **Hypercholesterolaemia** | Excessive cholesterol in the blood. |
| **Hypertension** | High blood pressure. |
| **Infarction** | Death of tissue. |
| **Ischaemia** | Inadequate blood supply. |
| **Low density lipoprotein** | A complex of fat and protein which is associated with an increased risk of coronary disease. |
| **Plaque** | A deposit of atheroma. |
| **Primary care** | The first point of contact between patient and medical practitioner. In England and Wales this term is often taken to be synonymous with general practice. |
| **Primary prevention** | The avoidance of coronary heart disease (or any other condition) through interventions designed to reduce the risks to which healthy people are exposed. For example, the provision of anti-smoking or other health advice to people without CHD who attend GP surgeries for another reason. See also secondary prevention. |
| **PTCA** | Percutaneous transluminal coronary angioplasty. The introduction of a catheter through the skin (percutaneous), into a blood vessel (transluminal), and to the arteries of the heart. A very fine deflated balloon wrapped around the tip of the catheter can be inflated to enlarge the coronary artery at an area of stenosis. |
angioplasty. First performed in 1977, this intervention offers the possibility of enlarging a coronary narrowing without the need for bypassing it, and therefore without surgery.

**Revascularisation**

Interventions to improve the blood supply. In the case of CHD these include CABG and PTCA (qv).

**Saturated fat**

A form of fat which, when consumed, increases the blood cholesterol; found mainly in meat and dairy products.

**Secondary prevention**

Interventions to slow or reverse the progression of disease. Some commentators employ the term 'secondary prevention' to refer only to treatments for asymptomatic disorders. But in line with common usage, this paper regards interventions such as therapies for people with symptomatic CHD designed to help them avoid events such as first or subsequent heart attacks as forms of secondary prevention.

**Tertiary centre**

A major medical centre with the capacity to perform open heart surgery, which receives referrals from both primary and secondary care. Its staff will comprise several cardiologists and cardiac surgeons.

**Thrombolysis**

The use of drugs which lyse (dissolve) blood clots. Since coronary thrombosis underlies most heart attacks, the prompt use of such drugs can be lifesaving.

**Thrombosis**

The process of clotting (thrombus – a clot).

**Unstable angina pectoris**

Angina which threatens progression to heart attack. Characterised by unpredictable pain, normally due to the partial occlusion of a coronary artery by a clot.

**Ventricles**

The two main pumping chambers of the heart.

**Ventricular fibrillation**

The most common cause of death immediately associated with myocardial infarctions. As defined above under ‘fibrillation’.
Appendix 1: Acknowledgements

Health authorities visited:  
Barnet Health Authority  
Clwyd Health Authority  
East London and the City  
Gloucestershire Health  
Leicestershire Health  
Manchester Health  
North Yorkshire Health Authority  
Oxfordshire Health Authority  
Sandwell Health Authority

The project’s advisory group members were:  
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James Piercy
York Health Economics Consortium

Geoffrey Podger
Under-Secretary, Department of Health

Donald Reid
Director, Association for Public Health

Imogen Sharp
Director, National Heart Forum

Dr Virginia Warren
Co-ordinator, Purchasing Development Project, Conference of Medical Royal Colleges

(Dr Jane Halpin succeeded Dr Warren as the national project co-ordinator in March 1995)

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### Appendix 2: Performance indicators in CHD prevention and treatment

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
</tr>
<tr>
<td>Age-specific or age-standardised CHD mortality rates</td>
<td>Best general outcome indicator available. However, district rates may be affected by non-healthcare factors such as changes in social class or ethnic group make-up, or unemployment. Also sickness and disability rates may not correlate with mortality.</td>
</tr>
<tr>
<td><strong>Primary prevention</strong></td>
<td></td>
</tr>
<tr>
<td>Percentage of health workers (eg, practice nurses or health visitors) with relevant training (eg, Look After Your Heart trainer courses).</td>
<td>Structural quality indicator. Evidence on relationship between training provision and health outcomes is limited, but this indicator provides a reasonable pointer to health authority and HPU performance.</td>
</tr>
<tr>
<td>Percentage of GP practices operating at the highest (band three) prevention scheme level.</td>
<td>Structural quality indicator, linked to some monitored processes. The areas with poorest performance likely to have greatest population health needs and practitioner support requirements.</td>
</tr>
<tr>
<td>Percentage of patients with CHD risk factor status (eg, blood pressure) recorded.</td>
<td>If data reliable, a good indicator of general practice process quality. Considerable performance variance at present. In the worst district visited, only 30 per cent of the 1995/96 blood pressure recording target was being met, compared with 76 per cent reported in the best district (Oxford).</td>
</tr>
<tr>
<td>Percentage of patients with risk factors receiving appropriate intervention - eg, treatment for hypertension or anti-smoking advice and support.</td>
<td>Appropriate interventions need careful specification - for example, advising smokers who have no intention of stopping that they should change their behaviour is of little value. Otherwise a valuable indicator of process and output.</td>
</tr>
<tr>
<td>Risk factor trends - eg, for exercise, and aggregated risk factor scores for populations.</td>
<td>The aggregated risk factor trend (if available) is the best general outcome indicator for CHD primary prevention. But it is influenced by many non-NHS factors, and is therefore an indicator of need as well as service impact.</td>
</tr>
<tr>
<td>Population awareness of CHD risk factors, and satisfaction with practice and other community based primary prevention.</td>
<td>Important population needs and intermediate outcome quality indicators, not usually available for either practice or district populations.</td>
</tr>
<tr>
<td><strong>Treatment in general practice</strong></td>
<td></td>
</tr>
<tr>
<td>Percentage of diagnosed CHD (and/or heart failure) patients receiving appropriate medical treatments, eg: aspirin; beta-blockers; ACE inhibitors; and statins.</td>
<td>Data may be distorted by under and/or misdiagnosis of patients’ conditions. Routine PACT information shows prescribing volumes and can be crudely indicative of prescribing quality. But the evaluation of treatment appropriateness and effectiveness at the individual patient level requires clinical audit.</td>
</tr>
<tr>
<td>Percentage of CHD patients with lifestyle risks, eg: smoking; and no regular (appropriate) exercise.</td>
<td>If available, these data are useful indicators of district needs and practice/hospital/HPU performance.</td>
</tr>
<tr>
<td>Percentage of working age population sick or permanently withdrawn from workforce due to CHD symptoms such as angina.</td>
<td>If available, a mixed indicator of social conditions, disease prevalence/need and service performance.</td>
</tr>
</tbody>
</table>
### Performance Indicator Comments

**Percentage of all patients aged under 75 in a practice or district population with severe (grade 3, frequent fatigue or pain) and very severe (grade 4, all daily activities restricted) angina.**

Data not routinely available, but if affordable and reliably conducted, surveys can be a useful indicator of need for and the adequacy of service provision.

**Emergency care of people with heart attacks**

- **Percentage of people with acute myocardial infarctions dying before hospital admission.**
  
  Age-standardised district data provide an indication of the overall quality of community-based emergency care, albeit that the service challenge varies between localities.

- **Percentage of all suspected AMI 999 calls reached within eight minutes.**
  
  Good indicator of ambulance service structural and process quality.

- **Percentage of patients with suspected heart attacks given an ECG within 15 minutes of admission.**
  
  Hospital process quality indicator.

- **Door to needle’ times for hospital thrombolysis, and percentage of all eventually confirmed MIs receiving treatment within 30 minutes of hospital arrival.**
  
  Hospital process quality - see main text. Additional indicators are required to evaluate service performance for inpatients who suffer heart attacks.

- **Percentage of all MI patients arriving at hospital alive still alive at 30 or 35 days.**
  
  Potential hospital care outcome indicator, although the numbers required to generate meaningful comparisons mean that in practice it is of limited value. May also be influenced by case mix and pre-hospital mortality.

### Hospital diagnostic and treatment services

- **Waiting times for assessment and diagnostic testing after the GP’s decision to refer or order testing, and for hospital interventions after the consultant’s decision to treat.**
  
  Important indicators of hospital service structure and process quality.

- **Hospital admission rates and average lengths of stay for CHD-related diagnoses such as angina and heart failure.**
  
  Indicators of district needs, hospital process and community service quality. Unexpectedly high or low rates may therefore require further analyses to be made.

- **Sex- and age- specific rates of coronary angiography by district and or locality.**
  
  Good structure and process indicator of access to services for more severely ill patients.

- **Sex- and age- specific rates of PTCA by district or locality.**
  
  Indicator of access and, in cases of very high or low district or locality rates, service balance and equity.

- **Sex- and age- specific rates of CABG by district or locality.**
  
  Indicator of access and, in cases of very high or low district or locality rates, service balance and equity.

- **Specialist unit, team and/or operator interventional mortality rates.**
  
  Often referred to as the key indicator of clinical outcome. In practice highly emotive but sometimes of limited value to managers and service users, due to case mix and other statistical data quality problems. The alternative is to use direct observation of process plus enquiries into selected deaths.

### Cardiac rehabilitation

- **Provision of cardiac rehabilitation courses per head of population.**
  
  Course content needs to specified.

- **Functional status (NYHA classification or equivalent) of CHD-related patients six months after hospital discharge from hospital, following defined interventions.**
  
  Use of this type of audit measure has been advocated in documents produced by the NHS Executive. A potentially powerful indicator of needs and service performance.

**Note:** Patient care standards in all areas require evaluation from a patient perspective, through both routine and special surveys and ‘patient audits’. Detailed clinical audits of limited samples of individual patient records are another important supplement to performance evaluations based on general indicators, as may also be confidential enquiries into the circumstances of CHD and related deaths among defined groups of patients.
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Dear to Our Hearts?
Commissioning Services for the Treatment and Prevention of Coronary Heart Disease

Questions for Board Members of Unified Commissioning Agencies/Health Authorities

To what extent are you confident that the statements below apply to your health authority?

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<th>Very confident</th>
<th>Moderately confident</th>
<th>Not confident</th>
</tr>
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<tr>
<td>1</td>
<td>This health authority has a good understanding of the needs of local people with CHD. We have sound information about their experiences in receiving treatment, and their service preferences. This is used to guide our service contracting/commissioning.</td>
<td></td>
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<tr>
<td>2</td>
<td>The health authority has a comprehensive, formally agreed, CHD service development strategy, which is being actively implemented.</td>
<td></td>
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<td>3</td>
<td>We know what information we need to commission appropriate services for the prevention and treatment of CHD, and have made the best possible progress towards obtaining the required data.</td>
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<tr>
<td>4</td>
<td>Commissioning services for the prevention of coronary heart disease is seen as an important task by the board of this authority – we have given the topic close attention and have appropriate management arrangements in this area.</td>
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<td>5</td>
<td>Helping people to stop smoking is one of the authority’s main priorities: we have an evidence based, targeted, programme which is being implemented.</td>
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<td>6</td>
<td>Where heart disease and smoking are concerned, this health authority and the trusts it purchases services from are exemplary ‘healthy employers’.</td>
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<td>7</td>
<td>There are strong ‘healthy alliances’ between the health authority and local government agencies, which focus on effective ways to prevent CHD. We work together well at both member and staff levels.</td>
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<td>8</td>
<td>The authority is making constructive use of the information on CHD risk factors being produced by each GP practice.</td>
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<td>9</td>
<td>The authority has assured itself that Health Promotion Unit staff and primary and secondary care clinicians have achieved good working relationships.</td>
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<td>10</td>
<td>The health authority has a comprehensive strategy for contributing to the development of primary care in the district, and has evidence that positive progress is being made with respect to its targets for CHD and related care.</td>
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<td>11</td>
<td>We have locally agreed, evidence-based, guidelines on the use of medicines such as aspirin, ACE inhibitors, beta-blockers and cholesterol lowering agents in CHD and heart failure.</td>
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12 The authority is making the fullest possible use of PACT data, and is effectively supporting the implementation of locally agreed good prescribing.

13 GPs in all parts of the district are satisfied with the provision of diagnostic services such as exercise ECG and echocardiography.

14 The provision of clinical services for people with CHD is well co-ordinated – there is good communication between cardiologists, GPs and other community based professionals in every part of the district.

15 This health authority has given close attention to the quality of care received by patients with heart failure in both hospital and community settings.

16 All local GPs are able to make appropriate use of rapid access clinics for people with newly diagnosed and/or deteriorating angina.

17 There are locally agreed guidelines on the pre-hospital care of patients with suspected heart attacks. The authority is monitoring ambulance and allied care standards, through the ORCON data and consultation with hospital and other NHS professionals.

18 Hospital treatment of all patients with heart attacks is monitored by this authority to ensure that standards for timely, appropriate, treatment are met.

19 This authority has developed clear, locally agreed, policies on which CHD patients should receive coronary angiography.

20 The health authority has evidence that patients waiting for revascularisation receive treatment in accordance with the urgency of their needs.

21 Local clinicians are closely involved in contracting for tertiary level CHD services.

22 The authority is working closely with local fundholders to promote good value-for-money secondary and tertiary care for patients with CHD.

23 The provision of PTCAs and CABGs is monitored in this district to ensure the adequacy and equity of patient access by age, sex and social factors.

24 The contracting/commissioning process gives us a good understanding of the volumes, costs and quality of all the hospital care being received by patients with CHD and heart failure.

25 The authority has clearly specified the rehabilitation and hospital discharge care it expects people with CHD-related conditions to receive, and is monitoring the quality of service delivered.
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London
SW1P 2PN
Tel: 0171 828 1212
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