

Tackling Coronary Heart Disease in the North West Region:

POLICY AND PRACTICE

A report for the
North West Public Health Observatory
(Greater Manchester Zone)

Arvin Prashar

Institute for Public Health Research & Policy
University of Salford

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Foreword

The North West Public Health Observatory (NWPHO) is comprised of three zonal units: Greater Manchester, Merseyside & Cheshire and Lancashire & Cumbria. Each zonal unit has been required by NHS Executive North West to produce a Public Health Information Report. The Merseyside & Cheshire unit are producing a report concerning cancer, whilst Lancashire & Cumbria's report is concerned with mental health. The North West region has a particularly high incidence of coronary heart disease, and this report constitutes the Public Health Information Report of the Greater Manchester zonal unit.

This Public Health Information Report is intended to guide policy and practice within the North West region for tackling coronary heart disease (CHD). It seeks to achieve this aim by bringing together local and national information resources, so as to enhance understanding of the links between environment, lifestyle and health. Through bringing together disparate sources of information and expertise from academic centres, Primary Care Trusts (PCTs) and other organisational bodies, it seeks to generate and disseminate public health intelligence on CHD and evidence-based practice to a wider audience. The report highlights ways in which local practice in the NW has responded to the national policy agenda provided by the National Service Framework on Coronary Heart Disease. It aims to :

- ◆ Encourage and facilitate evidence-based decision-making amongst policy makers both within and outside the health service,
- ◆ Provide analysis and interpretation of data to identify inequalities across the NW Region,
- ◆ Offer examples of good practice from around the NW Region in the use of public health information regarding policy and practice development, particularly in relation to implementing the National Service Framework (NSF) on Coronary Heart Disease.

This report has been structured as follows:

Introduction

An introductory section considers the nature of coronary heart disease and its current status within the context of the UK national policy framework.

Section 1: The Prevalence of CHD: Key Socio-Economic Factors

Section 1 focuses on the prevalence of CHD, and considers the impact of key socio-economic factors, including age, sex, ethnicity and socio-economic status.

Section 2: Key Behavioural Risk Factors for CHD

Section 2 considers the key behavioural risk factors for CHD. Through evaluating evidence-based research, it highlights good practice in changing risk-taking behaviour. It highlights ways in which Primary Care Trusts (PCTs), Health Action Zones (HAZs) and Health Authorities (HAs) in the North West Region are endeavouring to implement the national standards of care for preventing and treating CHD (ie Standards 1 and 2 of the NSF for CHD). It is not possible, within the context of this report, to summarise all North West initiatives, but to show examples of ways in which various organisations within the NW Region are working to meet this part of the NSF for CHD.

Section 3: Key Environmental Risk Factors for CHD

Section 3 considers the key environmental risk factors for CHD.

Section 4: Wider Socio-Economic Determinants of CHD

Section 4 focuses upon the wider socio-economic determinants of health, which influence the likelihood of being affected by CHD. It highlights examples of the wider macro-economic action required to tackle the structural basis for the incidence of CHD in the UK.

Section 5: Secondary Prevention of CHD

Section 5 considers evidence-based research concerning secondary and tertiary care services for people identified with CHD. It focuses upon NHS service provision in the context of the effectiveness of available treatments.

It also highlights ways in which Primary Care Trusts (PCTs), Health Action Zones (HAZs) and Health Authorities (HAs) in the North West Region are endeavouring to implement the national standards of care for treating CHD (ie Standards 3 to 12 of the NSF for CHD). It is not possible, within the context of this report, to summarise all North West initiatives, but to show examples of ways in which various organisations within the NW Region are working to meet this part of the NSF for CHD.

Section 6: Coronary Heart Disease: A Glossary

A brief glossary provides an explanation for some of the terms used in relation to treating CHD.

Section 7: Coronary Heart Disease: Useful Websites

A list of websites providing a range of information concerning CHD.

Appendices

This contains a series of tables illustrating the diverse nature of morbidity and risk-taking behaviour within the North West Region. Standardised mortality rates (SMR) for three selected NW health authority areas for CHD are provided for health authority, PCG and ward level data to illustrate the varied impact of CHD in different areas.

Introduction

What is coronary heart disease and why focus upon it ?

Coronary heart disease (CHD) is the most common cause of death in England¹. More than 110,000 people die from CHD every year within England, and roughly a third of these deaths are under the age of 75. Approximately one in four men and one in five women in the UK die from CHD.

CHD defines a group of conditions, including thrombosis, angina, arrhythmia and acute myocardial infarction (heart attack). This does not include thrombosis of the brain, which is commonly referred to as a stroke.

CHD occurs when the arteries of the heart become constricted, and their walls thickened by an accumulation of hard, fatty deposits. If a blood clot develops (ie thrombosis), this narrowing of the arteries can block blood supply to the heart, leading to a heart attack, stroke or unstable angina.

CHD can have the following consequences.

- ◆ Angina: a crushing pain in the chest area, either during physical activity or at rest.
- ◆ Acute myocardial infarction (ie heart attack) : some heart muscle dies through lack of blood, which may cause death or the onset of longer term problems, such as angina, chronic chest pain or chronic arrhythmia.
- ◆ Arrhythmia: the rhythm of the heart becomes disturbed, and is a common cause of death in the early stages of a heart attack.
- ◆ Heart failure: the heart fails to pump as well as it should – this can occur suddenly or become a long term difficulty.

Tackling CHD: The National Policy Context

The challenge of tackling CHD has a significant place within the UK public health policy agenda. The public health White Paper 'Saving Lives: Our Healthier Nation'² sets a variety of targets to be achieved by 2010, including a 40% reduction in the death rate from CHD / stroke in people under 75. This target-setting approach is also evidenced by the NHS White Paper 'Smoking Kills'³, which focuses upon reducing smoking amongst children, adult smoking across all social classes and women smoking during pregnancy.

The most important development has been the creation of a National Service Framework (NSF) for CHD⁴, which establishes various standards for the prevention, diagnosis and treatment of CHD. These include reducing CHD within the population, preventing CHD in high-risk patients, treating heart attack, managing heart failure and revascularisation. The NSF sets immediate targets for the introduction of smoking cessation clinics, rapid-access chest pain clinics and reducing call-to-needle time (ie the time from when an initial call for emergency ambulance care

¹ Key Area Handbook, Coronary Heart Disease and Stroke (Health of the Nation)

² Saving Lives: Our Healthier Nation, Department of Health, July 1999

³ Smoking Kills, Department of Health, December 1998

⁴ National Service Framework for Coronary Heart Disease, Department of Health, March 2000

is made until the administration of clot-dissolving thrombolytic therapy). Further targets relate to improving the use of medicines after heart attack, increasing the total number of revascularisation procedures and modernising services for CHD through a more systematic approach towards the delivery of care.

All of these aims are to be supported through comprehensive local delivery plans, which are responsible for translating national standards and service models into local plans. A strong emphasis throughout the NSF is placed upon a multi-agency collaborative approach, whereby health authorities, local authorities, PCGs / PCTs and NHS Trusts contribute to these local plans.

Section 1: The Prevalence of CHD: Key Socio-Economic Factors

Since the late 1970s, death rates from CHD have been falling steadily. In 1979 there were approximately 85 deaths per 100,000 of the UK population, and by 1997 this had fallen to roughly 38 deaths per 100,000⁵.

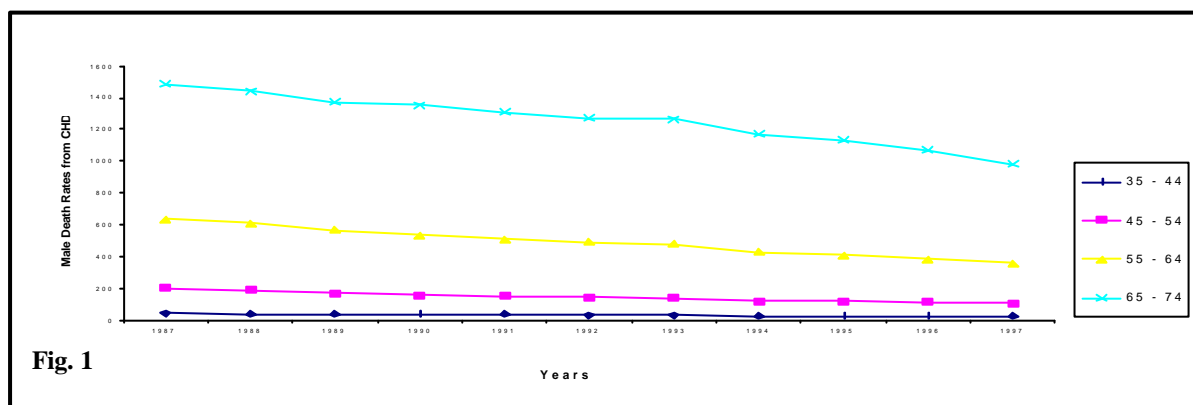
However, there are highly marked variations in the incidence of CHD within the UK according to age, sex, ethnicity, socio-economic status and region.

1.1 Age and Sex

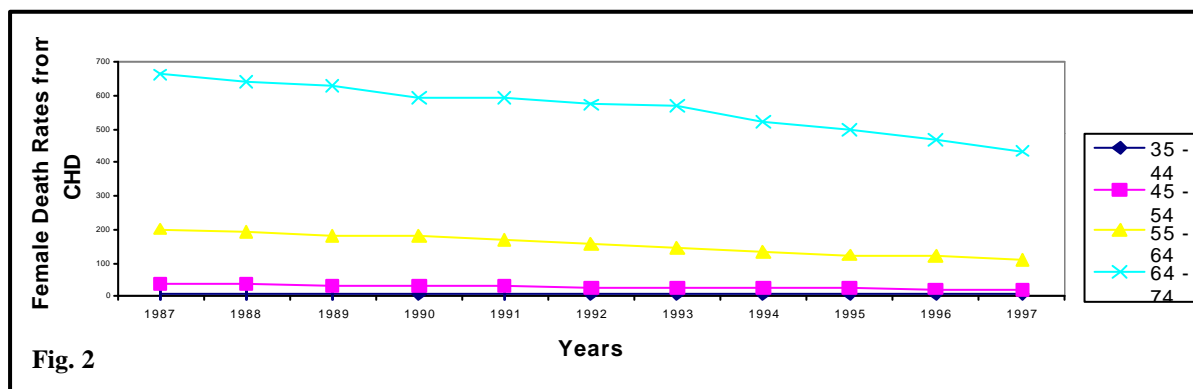
The death rate for CHD for both men and women increases sharply with age. The following graphs illustrate this pattern⁶, as well as the clear gender disparities in death rates, such that women are much less susceptible to CHD than men across all age categories.

Age-sex specific death rates per 100,000 from CHD in the United Kingdom

Men



Women



⁵ Department of Health, Office for National Statistics

⁶ World Health Organisation (1999) (see WHO website: <http://www.who.ch/>)

Fig. 1 shows that CHD death rates amongst men have been falling at a faster rate within younger age groups: there was a 44% reduction in death rate amongst men in the 35-44 age group between 1987 and 1997. However, the decline in death rate amongst men in the 65-74 age group over the same period was much less - 34%.

An interesting point of comparison is that CHD death rates amongst women have fallen more sharply within older age groups (see Fig. 2). Between 1987 and 1997 there was a 34% decline in death rate within the 65-74 age range, yet the corresponding decline within the 35-44 age range was 17%.

1.2 Ethnicity

There are marked differences in death rates from CHD according to ethnicity. Country of birth has been recorded on death certificates since 1970, and this has enabled some comparison of death rates for first generation immigrants with the majority ethnic population. Immigrants from South Asia (mainly India, Pakistan, Bangladesh and Sri Lanka) have much higher rates of premature mortality from CHD than the average population of England and Wales: 46% higher for men and 51% higher for women⁷.

However, an exploration of risk factor profile⁸ and mortality trends⁹ for men of South Asian origin indicate significant differences in relation to CHD within distinct South Asian communities. Bangladeshi communities appear to be the most disadvantaged, whilst Indian communities seem the least disadvantaged, according to a range of coronary factors.

The CHD death rates for South Asians is falling more slowly than within the majority population, and this has increased the difference in death rates between both groups. The mortality rate for the entire UK population (aged 20-69) fell by 29% for men and 17% for women between 1971 and 1991. However, over the same time period the mortality rate amongst South Asians fell by 20% for men and 7% for women¹⁰.

Caribbean and West African migrants show below average death rates from CHD within England and Wales. Caribbean men and women are respectively 54% and 29% below the national death rate average for CHD. However, the incidence rate for strokes illustrates a very different picture: male death rates for immigrants of West African origin are approximately three times higher, and female death rates are 81% higher, than the national average for England and Wales¹¹.

⁷ Wild, S & McKeigue, P (1997) 'Cross-sectional analysis of mortality by country of birth in England and Wales, 1970-1992', *BMJ*, 314, pp 705-710

⁸ Bhopal, R et al (1999) 'Heterogeneity of coronary heart disease risk factors on Indian, Pakistani, Bangladeshi, and European origin populations: cross sectional study', *BMJ*, 319, pp 215-220

⁹ Balarajan, R (1984) 'Ethnic differences in mortality from ischaemic heart disease and cerebrovascular disease in England and Wales from the Indian Subcontinent', *BMJ*, 289, pp 1185-1187

¹⁰ Wild, S and McKeigue, P (1997) cited earlier.

¹¹ Wild, S and McKeigue, P (1997) cited earlier.

1.3 Socio-Economic Status

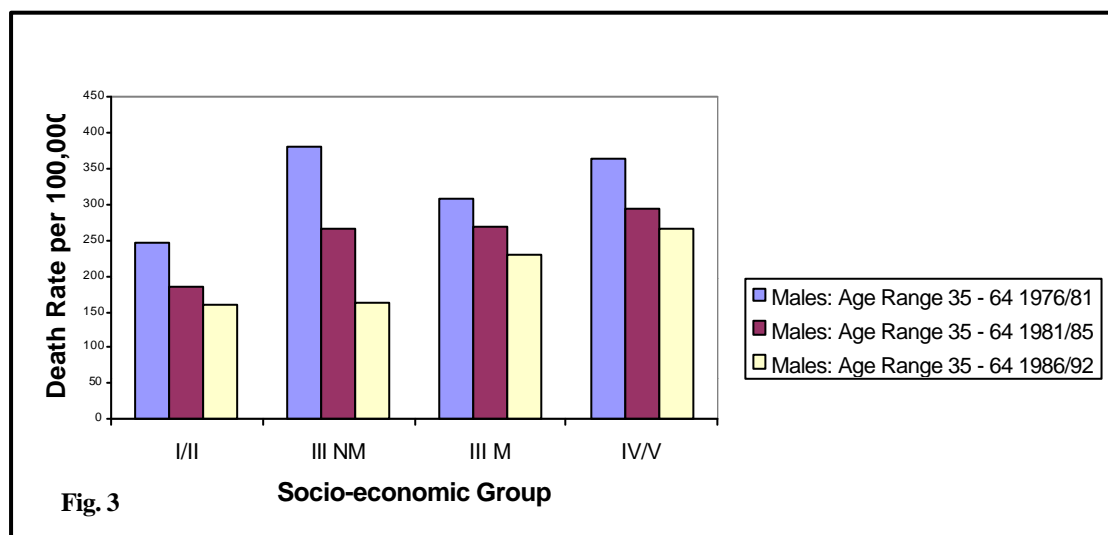
A variety of measures can be used to measure socio-economic status, including occupation, educational status and characteristics of residential area. Type of occupation remains the most commonly used form of measurement. The five key occupational socio-economic groups are listed as follows:

Occupational Socio-Economic Groups	
Group I	= Professional
Group II	= Intermediate
Group III	= Skilled / Non-Manual
Group IV	= Skilled / Manual
Group V	= Partly Skilled / Manual

The following graphs illustrate the enormous socio-economic gradient, such that the premature death rate from CHD for manual workers is roughly 58% higher than for male non-manual workers¹² (see Fig. 3). A similar pattern is evident across the gender divide: the premature death rate for female manual workers (see Fig. 4) is more than twice the equivalent rate for non-manual workers.

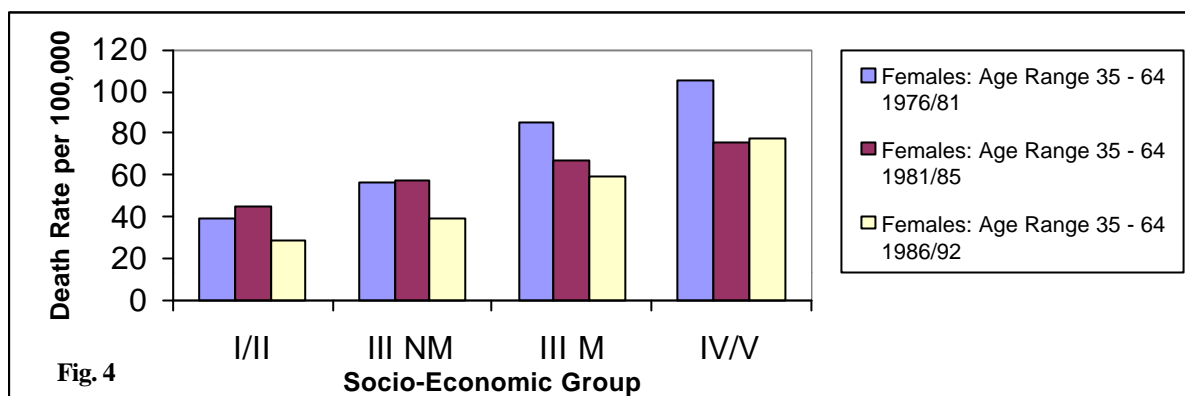
Age-standardised death rates per 100,000 population from CHD by sex / socio-economic group

Men



¹² Office for National Statistics (1997) Health Inequalities. The Stationery Office: London.

Women



Figs. 3 and 4 indicate that despite the fall in death rates for men and women within all socio-economic groups, non-manual workers have experienced much sharper falls than manual workers. Consequently the difference in death rates between professional / non-manual and unskilled / manual socio-economic groups is increasing¹⁴.

Other indicators of socio-economic status, such as housing tenure, also highlight this gradient: within the 18-55 age range for men, CHD mortality is 50% higher for council house tenants than for owner occupiers¹³.

1.4 Regional Variations

There are strong regional variations in death rates for CHD. Scotland, Northern Ireland and Northern England have much higher rates than Wales and the South of England¹⁵.

Of the nine English NHS Regions, the North West has by far the highest death rates for CHD for both men and women. The table below¹⁶ uses mortality data to underline the disproportionate impact of CHD within the North West in comparison with other parts of the UK. It illustrates the 'years of life lost' (YLL) standardised to the European population, which eliminates the effects of population age structures, and allows for a fair geographical comparison of premature mortality. This standardisation avoids any potential misrepresentation due to an overpopulation of elderly people in some areas.

¹⁴ Drever, F and Whitehead, M (eds) Health Inequalities. ONS Series. DS no. 15. London: The Stationery Office, 1997.

¹³ Acheson, D 'Independent Inquiry into inequalities in health report' (see earlier)

¹⁵ Coronary Heart Disease Statistics (2000 Edition), British Heart Foundation, Health Promotion Research Group, Department of Public Health, University of Oxford.

¹⁶ Compendium of Clinical and Health Indicators, Department of Health, 2000.

**Mortality from CHD Upto Age 75:
Directly Standardised Average Annual Years of Life Lost (YLL) Rate (per 10,000) 1997 - 1999**

NHS Regional Office	Standardised Average Annual YLL Rate, 1997 - 1999		
	Males	Females	Males / Females Combined
England & Wales (Average)	132.2	37.9	84.2
North West	164.4	50.7	106.5
London	126.1	34.1	79.2
South East	107.1	29.5	68.9

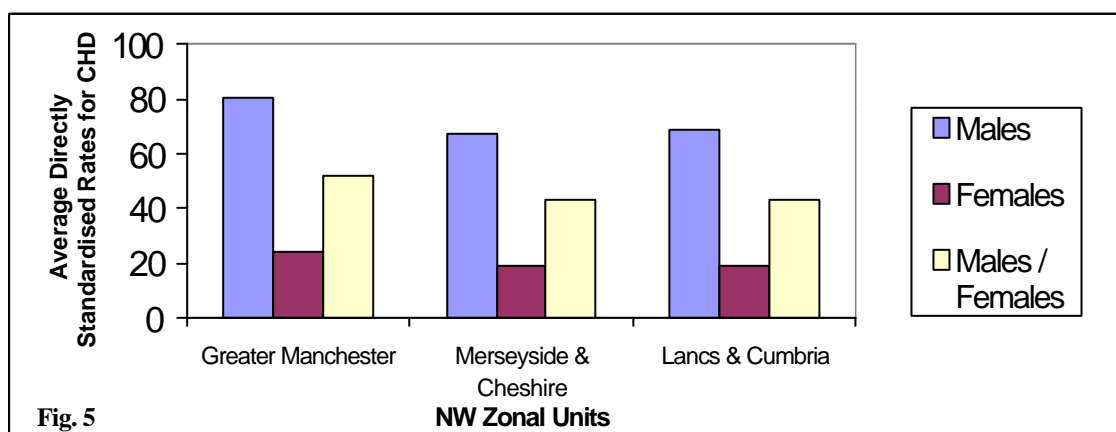
Further geographical variations also exist within the North West Region.

The North West Public Health Observatory is comprised of three zonal units: Merseyside & Cheshire, Lancashire & Cumbria and Greater Manchester. Using directly standardised mortality rates for CHD for the local authority areas comprised within each zonal unit, clear differences between each zonal unit's experience of CHD emerge (see Fig. 5 below¹⁷).

People in Greater Manchester have clearly the worst experience of CHD within the North West Region in comparison with the areas covered by the other two zonal units. There is little difference in CHD mortality between the Merseyside & Cheshire and Lancashire & Cumbria zones.

However, within each of the areas comprising the zonal units, there are highly marked differences in CHD mortality at health authority, PCG/T and ward level (see Appendices).

**Mortality from CHD Upto Age 65:
Average Directly Standardised Rates (DSR) per 100,000 : 1997 – 1999**



¹⁷ Compendium of Clinical and Health Indicators, Department of Health, 2000.

Section 2: Key Behavioural Risk Factors for CHD

Introduction

Certain factors, either singly or in conjunction with others, can increase the risk of coronary heart disease. Behavioural factors relate to modifiable behaviour patterns, such as smoking, poor diet, physical inactivity and being overweight/obese. Environmental risk factors, such as water and air quality, are also associated with CHD.

This section will focus upon behavioural risk factors. It uses evidence-based research to highlight effective methods of tackling these risk factors.

Tackling behavioural risk factors for CHD relates to Standards 1 and 2 of the NSF for CHD. This section of the report is intended to provide examples of ways in which various organisations within the North West Region are working to meet this part of the NSF for CHD.

2.1 Smoking

Roughly a fifth of male and female deaths from CHD are due to smoking¹⁸. It has been estimated that in 1998 28% of men and 26% of women smoked cigarettes. Despite the sharp fall in cigarette smoking during the 1970s (roughly a quarter), the past 20 years has witnessed a much narrower decline¹⁹.

The relationship between smoking and CHD is stronger within younger age groups: male smokers below the age of 45, who smoke 25 or more cigarettes per day, are 15 times more likely to die of CHD than non-smokers of the same age. Older smokers (aged 55-64) who smoke the same amount have only twice the risk of CHD mortality in comparison with non-smokers within the same age range²⁰.

Given the causal relationship between smoking and CHD, it is vitally important to encourage smokers to cease smoking, especially as the risk of CHD is much reduced among former smokers in comparison with others who continue to smoke²¹. Studies in the United States have indicated that smokers experiencing CHD can halve their risk of CHD mortality upon ceasing to smoke²².

¹⁸ Britton, A & McPherson, K (2000) Monitoring the Progress of the 2010 Target for Coronary Heart Disease Mortality: Estimated Consequences on CHD Incidence and Mortality from Changing Prevalence of Risk Factors, Department of Health, London (in press)

¹⁹ Wald, N (1991) UK Smoking Statistics, 2nd Edition. Oxford University Press.

²⁰ Doll, R et al (1994) 'Mortality in relation to smoking: 40 years observations on male British doctors' BMJ, 309, pp901-911

²¹ Tang, JL et al (1992) 'Giving up smoking: how rapidly does the excess risk of ischaemic heart disease disappear?' Journal of Smoking Related Diseases, 3, pp 203-215

²² US Department of Health and Human Services (1990) The health benefits of smoking cessation: a report of the Surgeon General

◆ *Regional Variations*

The rate of cigarette smoking is higher in northern England than southern England. Amongst women, smoking is higher in the North West Region (32%) than any other English region.

◆ *Socio-economic Variations*

Cigarette smoking remains more prevalent among manual workers than non-manual workers. In 1998, 36% of men and 31% of women in manual occupational groups smoked compared with 21% of men and women within non-manual groups.

2.1.1 What can be done to Reduce Smoking ?

Community wide approaches to reduce smoking, which involve the health services, voluntary organisations, the media and local authorities can be particularly effective. Collectively they can support a range of activities, including smoking cessation services, helplines, training for health professionals, schools programmes and media campaigns.

Standard 2 of the NSF for CHD: NW Initiatives to Reduce Smoking

The NHS and partner agencies should contribute to a reduction in the prevalence of smoking in the local population

- An innovative initiative has linked the **Manchester Smoking Cessation Service** with a credit union in south Manchester. Credit unions are mutual financial cooperatives that provide convenient and accessible savings and loans to their membership. Publicity leaflets aimed at potential credit union members highlight the availability of local support groups to give up smoking, as well as the financial savings that can be made from ceasing to smoke.
- Other initiatives have targeted ethnic minority groups. A project worker in **West Pennine HA** has been appointed to develop and implement initiatives to target minorities, and a community project focused on smoking is underway in an area of Salford and Trafford with a significant ethnic minority population.

◆ **Develop smoking cessation services**

An integrated smoking cessation service should include primary care advice, specialist smoking cessation clinics and one-to-one cessation advice. The following evidence-based guidelines²³ for smoking cessation services are highly relevant.

- GPs should advise smokers to stop during routine consultations, as well as refer to specialist services.
- Specialist smokers services should give behavioural support to smokers who wish to quit (either in groups or individually).

²³West, R et al 'Smoking cessation guidelines for health professionals: a nd update'. Thorax (2000); 55: 987-999

- All health professionals involved in smoking cessation should encourage and assist smokers in using Nicotine Replacement Therapy (NRT) where appropriate.
- Specialist cessation counsellors should give behavioural support to hospital patients, including pregnant smokers requiring help with quitting.

- **Manchester, Salford & Trafford HAZ** has developed a comprehensive smoking cessation service. There are two levels of intervention: initially GP practices offer advice and support, and then specialist advisers offer more intensive support. Participants who do not pay for prescriptions receive the benefit of free NRT, and local pharmacists in north Manchester PCT have received intermediate training as smoking cessation advisers to support would-be non-smokers. Furthermore a group protocol within pharmacies enables smokers to obtain a prescription for NRT from their pharmacist rather than their GP.
- The smoking cessation service has made significant progress in supporting smokers set a quit date. South Manchester PCT has recorded a 30% quit rate from patients / clients supported by smoking cessation intermediate support workers, as well as pharmacists acting as intermediate advisers.
- **Manchester Health Promotion Service** supports pregnant smokers through developing a training programme for midwives, and smoking cessation posts have been established to train midwives in using evidence-based smoking cessation methods to help pregnant women give up smoking.
- **Sure Start project workers** have been trained as smoking cessation advisers for pregnant women in Stockport PCT, Manchester HA, St Helens & Knowsley HA, East Lancashire HA and North West Lancashire HA.
- A system of fast-tracking referrals into the smoking cessation service for pregnant women is taking place in **North West Lancashire HA and West Pennine HA**.

- **Merseyside HAZ** has developed a range of comprehensive services in relation to smoking cessation. Under the banner 'SUPPORT', it aims to provide high quality interventions that are sensitive to the needs of local populations to help them reduce smoking levels.
- The service is divided into four health authorities : Liverpool, Sefton, St Helens & Knowsley and Wirral.
- Each health authority runs its cessation services slightly differently, according to local circumstance and level of deprivation: Liverpool, for example, offers mainly a specialist advisory service, and runs clinics for ethnic minority groups, which incorporate the use of interpreters. Other Merseyside health authorities have smaller ethnic communities and, therefore, place less emphasis on clinics targeted at minority ethnic groups. Similarly they place greater emphasis on providing intermediate rather than specialist support.

- **Merseyside HAZ** have also produced a comprehensive information pack 'Thinking About Quitting Smoking ?' which is available to all people using the cessation service and is used by intermediate and specialist services alike.
- Knowsley, Liverpool, Sefton, St Helens & Knowsley and Wirral have each developed services to suit local people who wish to give up smoking. There is also a Merseyside-wide helpline – 'Fagends' – run by the Roy Castle Foundation.
- Smoking Prevention, Theatre in Education and Specialist Smoking Cessation services in the Wirral have supported a range of projects to inform young people on the dangers of smoking. The focus is on raising awareness of services for young people, and providing support to enable people to quit.

◆ **Reduce smoking in public places (especially workplaces)**

This limits the non-smoking population's exposure to nicotine, but also puts smoking into a broader context than merely personal choice and personal risk (ie smoking becomes legitimised as a social problem affecting everybody). In reducing the opportunities to smoke, there is evidence of reduced prevalence in the longer term²⁴. Longer term plans should ensure that all local hospitals have smoking policies that are fully implemented. Similarly bars, restaurants and other leisure facilities should also provide smoke-free areas.

◆ **National media campaigns**

Mass media campaigns can enhance the rate at which people naturally stop smoking, and may be particularly useful in reaching people who are less educated²⁵ and living in poorer communities. The content of the media campaign, combined with its intensity and duration, can be important factors in determining its impact²⁶. Media advocacy campaigns may be particularly effective with poorer groups, given that they are keen media consumers, especially in relation to television.

- **St Helens & Knowsley HA** have undertaken a four week radio and newspaper campaign aimed at supporting smoking cessation services.
- **Merseyside HAZ** have developed a self-help pack on quitting smoking aimed at people who are unable to access mainstream support services due to work or caring responsibilities.

◆ **Schools smoking programmes**

Some schools programmes have focused purely on providing knowledge to children about the adverse effects of smoking. However, evidence from a review of such school-based programmes²⁷ suggests the need to include training that recognises peer pressures to smoke, as

²⁴ Borland, R et al (1991) Predicting attempts and sustained cessation of smoking after the introduction of workplace smoking bans. *Health Psychology*, 11 (5), 290-299.

²⁵ Macaskill, P et al (1992) Mass media -led anti-smoking campaigns can remove the education gap in quitting behaviour. *American Journal of Public Health*, 82 (1) 96-98

²⁶ Grey, A et al (2000) *A breath of fresh air: tackling smoking through the media*. London: Health Development Agency

²⁷ NHS Centre for Reviews and Dissemination. *Effective Health Care*. October 1999, Volume 5, No 5

well as the inclusion of pledges or commitments not to smoke. Educational materials concerning the dangers of smoking should also be included.

The most effective schools programmes attempt to teach skills at recognising social pressures to smoke, and at developing appropriate skills to resist those pressures. They also include information on the short-term health effects of smoking. Recent evidence highlights the need to implement such programmes before regular patterns of smoking behaviour are formed²⁸, which may involve targeting children as young as four years of age.

National Healthy Schools Programme

The Healthy Schools Programme is a key element in the drive to improve standards of health and education, and to tackle health inequalities. It aims to make children, teachers, and communities more aware of the opportunities that exist in schools for improving health. Local healthy schools programmes (based upon education and health partnerships) support schools in becoming healthier places for staff and pupils to work and learn.

The National Healthy School Standard provides guidance on the criteria that local partnerships should use in making judgements about school success in relation to a variety of themes, such as healthy eating and physical activity. Local healthy schools can gain national accreditation if they meet national quality standards, which are organised under three general themes: partnerships, programme management and working with schools.

- Across the NW region there are 20 local healthy schools partnership programmes: 8 in Greater Manchester, 8 in Merseyside & Cheshire and 4 in Lancashire & Cumbria. Flexibility to meet additional needs, other than those identified in the guidance, is maintained through the inclusion of local and school-led priorities.
- The **Manchester Healthy Schools Partnership** operates an award scheme ‘Going for Gold’ which involves schools identifying with three health improvement targets: ethos, learning and environment.
- **Salford and Trafford Healthy Schools Partnership** is focused upon ten health-related areas, including physical activity beyond schools-based PE classes, ‘Fitbods’ and the Schools Nutrition Action Project (‘SNAP’ - see below).
- It has recently piloted a project centred upon smoking prevention within primary schools, which involves providing teachers with an educational pack, including role play / classroom games to alert children to the dangers of smoking. It hopes to make these materials more widely available within Salford and Trafford.

- Merseyside HAZ has supported smoking prevention initiatives within a variety of schools in St Helens & Knowsley.

Preventing the uptake of smoking in young people.

²⁸ Porcellato et al Primary schoolchildren’s perceptions of smoking: implications for health education. Health Education Research (1999); 14: 71-83.

◆ Nicotine replacement therapy (NRT)

NRT is available in various forms, including patches, chewing gum and nasal spray. Clinical trials have clearly shown that NRT has decreased the proportion of people smoking by roughly 12% amongst smokers motivated to quit²⁹. It is particularly useful when some kind of additional support, ranging from brief advice to more intensive forms of counselling, is provided alongside it. Among heavy smokers (ie those smoking more than 20 cigarettes per day), higher dose nicotine gum is more effective than lower dose nicotine gum or patches³⁰.

The proportion of women smoking during pregnancy has increased markedly over the past ten years. Prenatal counselling on a one-to-one basis, combined with the distribution of written materials relevant to pregnancy, can double cessation rates to roughly 15%³¹.

2.2 Diet and Nutrition

Research suggests that almost 30% of deaths from CHD are attributable to unhealthy diets³². The type and amount of fat consumed has an influence on blood cholesterol. Saturated fat-rich diets raise the cholesterol level, which is known as a risk factor for CHD. A reduction in saturated fat intake of 10% within the UK would help to reduce CHD mortality by between 20-30 %³³.

The Committee on the Medical Aspects of Food and Nutrition Policy (COMA) recommends a reduction in fat (particularly saturated fats), reduced salt intake and an increase in fibre-rich carbohydrate consumption³⁴. Further recommendations call for an increase in fruit, vegetable, bread and potato consumption by at least 50% (which would be roughly equivalent to five daily portions).

Over the past thirty years, the proportion of food energy derived from total fat has fallen slightly. However, there has been a marked shift in consumption of foods high in saturated fats (such as butter, red meat and whole milk) towards reduced fat foods³⁵ (eg semi-skimmed milk and soft margarines). Although fresh fruit consumption has risen over the past twenty years, this has been offset by reduced consumption of fresh green vegetables. Similarly British men consume vegetables and fruit much less frequently than women, and younger people eat less of them than older people³⁶.

²⁹ Law, M et al. An analysis of the effectiveness of interventions intended to help people stop smoking. *Arch.Intern.Medicine* (1995); 155: 1933 - 1941

³⁰ Ling Tang, J et al How effective is nicotine replacement therapy in helping people to stop smoking. *BMJ* (1994); 308: 21 - 26

³¹ Agency for Health Care Policy & Research cited in NHS Centre for Reviews and Dissemination, University of York

Effectiveness Matters. Volume 3 Issue 1 March 1998 'Smoking Cessation: What the Health Service Can Do'

³² Department of Health (1996) *The Health of the Nation, Technical Supplement*.

³³ Marmot, M. (1994) *The cholesterol papers*. *BMJ*, 308, 351-352

³⁴ Department of Health (1994) *Nutritional Aspects of Cardiovascular Disease*. Report of the Cardiovascular Review Group of the Committee on Medical Aspects of Food Policy. HMSO: London.

³⁵ Ministry of Agriculture, Foods and Fisheries. *National Food Survey (1997)*. London: The Stationery Office.

³⁶ Office of Population, Censuses and Surveys, Social Survey Division, *Health Survey for England (1994)*

◆ *Regional Variations*

Major regional variations exist according to fruit and vegetable consumption. People living in Northern England, Scotland and Northern Ireland consume much less fruit and vegetables than people in Southern England. Moreover, household consumption of total fat is highest within the North West Government Office Region when compared to all other English Regions³⁷.

◆ *Socio-economic Variations*

There are highly significant differences in fruit and vegetable consumption in relation to socio-economic grouping, such that more affluent groups consume roughly a third more than less affluent groups. Poorer households spend a higher proportion of their income on food than more affluent households. Low income limits both the ability to afford healthy foods, as well as access to food retailers where healthy food can be purchased more cheaply³⁸.

2.2.1 What can be done to improve diet and nutrition ?

Poor diet and nutrition is one of the behavioural risk factors relating to Standard 1 of the NSF for CHD.

Standard 1 of the NSF for CHD: NW Initiatives to Reduce the Prevalence of CHD Risk Factors in the Population

The NHS and partner agencies should develop, implement and monitor policies that reduce the prevalence of coronary risk factors in the population, and reduce inequalities in risks of developing heart disease

◆ **Community owned retailing outlets: food cooperatives**

Locally organised initiatives can be effective in changing people's eating habits if maintained over time³⁹, as well as increase accessibility to fruit and vegetables at an affordable price within areas lacking local supplies. They can also encourage people to try new foods at prices which they can afford, which can be vital in developing their sense of confidence and self-esteem. Research in Bolton⁴⁰ highlights the work of Community Nutrition Assistants in working with local people to act on food and health needs, thereby empowering them to exercise greater control over their eating habits.

◆ **Community food growing schemes**

Food growing schemes can include city farms, allotments, or the regeneration of former urban wasteland sites. As well as increasing the supply of fruit and vegetables⁴¹, they can also support

³⁷ Ministry of Agriculture, Foods and Fisheries (cited earlier)

³⁸ James, WPT et al. Socio-economic determinants of health: the contribution of nutrition to inequalities in health. BMA (1997); 314: 1545-1553

³⁹ Price, S & Sephton, J. Evaluation of Bolton's Food Co-ops (November 1995). Community Healthcare, Bolton.

⁴⁰ Kennedy, L & Ubido, J. Evaluation of the Community Nutrition Assistant Food and Health Training Project, Bolton (April 1998) University of Liverpool.

⁴¹ City Harvest, Sustain Publications (1999)

greater physical activity and encourage weight loss. Research in Bradford⁴² emphasises the benefits to ethnic minority communities, such as reduced social isolation and increased confidence.

◆ **Cook and eat initiatives**

These initiatives attempt to tackle a general lack of cooking skills within the population⁴³. In addition to enhancing nutritional knowledge, such initiatives can also reduce social isolation. They can be held in a variety of community locations and run by various community organisations, such as women's groups, youth clubs or religious organisations. Recent research has supported the view that redesigned cooking and food initiatives have the capacity to change the diets of young people and their families⁴⁴.

- **Central Manchester PCT** has employed 3 Community Food Workers trained in food and nutrition. They are based in different areas of central Manchester: one works with the Asian community in Longsight, another with the Irish community in Levenshulme, and another with the Afro-Caribbean community in Hulme. Part of their remit is to :
- Assess the food and health needs and concerns of local residents within a specific population
- Facilitate practical initiatives to enable these issues to be addressed
- Enable people to eat a healthier diet and thus prevent CHD
- Focus on preparing meals and developing recipes with a reduced fat content, but without compromising cultural sensitivities.

◆ **School based initiatives: nutritional standards for school lunches / breakfast clubs**

Forthcoming legislation means that from April 2001 there will be minimum nutritional standards in relation to school lunches. Research evidence has shown that where schools have manipulated the fat content of meals offered to children⁴⁵, this can reduce saturated fat intake by 2%. Promoting low fat choices in schools has also led to an increase in the selection of low fat foods. Recently 230 school breakfast clubs have been set up, which are currently being evaluated. Dietary interventions have little impact on increasing consumption of fibre, fruit or vegetables. Recent evidence suggests that computer generated nutritional education⁴⁶ is more likely to be internalised by children than standard educational materials.

⁴² Hussain, M & Robinson, J (2000) Gardening for health: evaluation. Heartsmart and Bradford Community Environment Project

⁴³ Lang, T et al (1999) Cooking skills and health. London: HEA.

⁴⁴ Caraher, M & Lang, T (1999) Can't cook, won't cook: a review of cooking skills and their relevance to health promotion. International Journal of Health Promotion and Education, 37 (3), 89-100

⁴⁵ Ellison et al (1989) The environment component changing school food service to promote cardiovascular health. Health Education Quarterly, 16, 285-297

⁴⁶ Brug, J et al. The application and impact of computer generated personalised nutrition education: a review of the literature. Patient Education and Counselling (1999); 36, 145-156

- **Salford and Trafford Health Promotion Service** runs ‘Access to Healthy Food’, a programme of training and support in cooking skills and healthy eating, with a particular emphasis for those working with young people.
- Salford and Trafford Healthy School Scheme has been set up with a ‘whole school’ ethos: schools receive guidance, training and support to help them meet the criteria of the Healthy School Award. Healthy eating guidelines have been produced for all primary schools in Salford. An after-schools cookery club aimed at primary schools has been piloted in some schools.
- Salford & Trafford Healthy Schools Scheme (supported by Health Promotion Service) coordinates a range of initiatives, including a Healthy Eaters Group and, in Trafford, a Schools Nutrition Action Project (SNAP).

- **Merseyside HAZ’s Food Strategy** incorporates a variety of initiatives, which include:
- Working with local schools to help them develop and implement a nutrition policy.
- Working with local food producers, so that they may reduce the salt and fat content of their foods, which are provided to schools.
- Supporting a leading food producer in seeking to increase fibre levels in traditionally low fibre foods without altering the taste.
- Supporting Liverpool City Catering and a leading food manufacturer in training school dinner ladies on nutritional issues, so that they may advise children with food selection.
- Supporting ‘Fruit for Schools’ pilot, food cooperatives and work on food hygiene.

2.3 Physical Activity

Men who are physically active have about half the risk of CHD than inactive men⁴⁷. Maximum cardiac benefit is produced when the activity is both regular and aerobic. Aerobic activity involves using large muscle groups in the arms, legs and back steadily and rhythmically so that breathing and heart rate are increased. A review of studies relating to physical activity concluded that there is convincing evidence for physical activity having a protective impact against CHD⁴⁸.

Approximately a third of all deaths from CHD in both men and women are a direct result of a lack of physical activity. It has been estimated that a tenth of all deaths from CHD could be avoided if people who are sedentary or have a light level of exercise increased their physical activity to a moderate level⁴⁹.

Other research estimated that if half the people taking some moderate activity increased its regularity to at least five times per week, this would produce a 7% reduction in deaths from CHD⁵⁰. The benefits of physical activity do not relate solely to primary prevention of CHD. Moderate physical activity has significant benefits for patients recovering from a heart attack⁵¹, and can reduce mortality for such patients by 20%

⁴⁷ Powell, KE et al. Physical activity and the incidence of coronary heart disease. *Annual Review of Public Health*, (1987), 8, 253-287

⁴⁸ Berlin, JA & Colditz, GA (1990). A meta-analysis of physical activity in the prevention of coronary heart disease. *American Journal of Epidemiology*, 132, 612-628

⁴⁹ The Scottish Office (1999) *Towards a Healthier Scotland*: Edinburgh.

⁵⁰ Casey, D (Ed) *More people, more active, more often: physical activity in England: a consultation paper*. London: Department of Health, Physical Activity Task Force (1995)

⁵¹ O’Connor, G. et al. An overview of randomised trials of rehabilitation after myocardial infarction. *Journal of the American Medical Association* (1988), 260, 945-950.

The UK government recommends that adults participate in a minimum of 30 minutes of at least moderate intensity physical activity on five or more days per week. Examples of such activity include brisk walking, cycling, swimming or dancing.

◆ *Age and Gender Variations*

Physical activity levels are low in the UK. A mere 37% of men and 25% of women meet the current guidelines given above, and participation in physical activity is lower within ethnic minority communities. More than a third of men are deemed inactive (ie they do less than one occasion of 30 minutes activity per week).

Physical activity in the population declines with age. Although 58% of men and 33% of women aged 16-24 are physically active, this declines to 17% of men and 12% of women in the 65-74 age range.

2.3.1 What can be done to increase physical activity ?

Effective promotion of physical activity involves developing strategies that encourage partnerships between various professional and community groups. The key aim should be to achieve sustainable, long-term change in relation to engaging in physical activity.

Having a low level of physical activity is one of the behavioural risk factors relating to **Standard 1 of the NSF for CHD (see Section 2.2.1)**.

◆ **Exercise referral schemes**

Exercise referral schemes involve primary care referral to a time-limited programme of physical exercise. There is limited evidence that such schemes lead to small improvements, but to date there is no evidence of long-term impact⁵². They are dependent upon close collaboration between primary care health services and leisure services. Their effectiveness may be increased by involving staff trained in behavioural change strategies.

◆ **Employee incentives to cycle or walk to work**

Public health exercise promotion strategies which are aimed at modifying the environment – to encourage walking and cycling – are likely to reach more of the inactive population than efforts to increase the use of exercise facilities⁵³. An important benefit of this approach is that cycling and walking are types of activities which can be incorporated into the individual's daily routine, rather than requiring attendance at separate exercise facilities, such as gyms or leisure centres.

⁵² Riddoch, C et al (1998) Effectiveness of physical activity promotion schemes in primary care: a review'. London: HEA

⁵³ Hillsdon, M & Thorogood, M. A systematic review of exercise promotion strategies. British Journal of Sports Medicine, 1996, 30: 84-89

- **‘Walking the Way to Health’** is a national initiative of the BHF and the Countryside Agency. It involves setting up and supporting a range of community based schemes targeted at disadvantaged areas in town and country across England.
- Within the NW there are local schemes, providing programmes of short led walks, self-help information to encourage independent walking and connections to other services and support networks concerning better health. Many schemes aim to make places to walk safer and more accessible.
- Its priority areas are the Health Action Zones, Rural Development Areas and local authority districts falling within the 25% most disadvantaged as defined by the UK’s Index of Multiple Deprivation.

- **Manchester, Salford &Trafford HAZ** are developing a project (‘Walking for All’), in partnership with Salford Leisure Services, to increase opportunities for cheap, sociable and accessible activity through walking.

- **Merseyside HAZ** is supporting a project, in conjunction with St Helens MBC, to introduce regular volunteer-led walks to encourage physical activity and raise awareness of the health benefits of being physically active.

- Merseyside HAZ in conjunction with Sefton MBC has run a pilot programme aimed at encouraging cycling. The programme has run two courses, each of six weeks duration : cyclists are separated into either absolute beginners or those nervous of road safety. At the end of the course, cyclists are able to cycle confidently using the local road networks in Sefton.
- This pilot project has proved highly successful, and all Merseyside local authorities have agreed – in principle – to host similar programmes.

- **Merseyside Travelwise** is a travel awareness campaign run by all five Merseyside local authorities and Merseytravel, and funded by Merseyside HAZ. It aims to raise awareness of the effects of the motorcar on health, the environment, wider society and the economy, whilst promoting the benefits of walking, cycling and public transport. Its programme centres upon a variety of different areas:
 - Raising awareness of the increased effects of motor car use through talks, presentations and events
 - Developing Green Transport Plans with businesses and other organisations to reduce their effect on traffic generation and so make it easier for people to reach their workplace.
 - Working with parents, schools, children and governors to support the development of School Travel Plans, and working with local authorities to start Safer Routes to School Projects, so that school journeys become safer, healthier and better for the environment.
 - Working with community groups and individuals to raise awareness of the effects of increasing traffic, and encourage action to improve the local environment and health.

◆ School-based physical activity programmes

Such physical activity programs have been linked with a positive change in behavioural patterns within schools. Where they have been appropriately designed and delivered, they can increase physical activity, as well as enhance physical skill development⁵⁴. Where young people have been given a strong role in planning activity programmes, they are more likely to be effective⁵⁵. A ‘whole school’ approach to promoting physical activity would involve staff, pupils and parents / carers in promoting physical activity. Such an approach could act as a catalyst for developing links with the local community, as well as encouraging safe transport routes to school.

- As part of the **Salford & Trafford Healthy Schools Scheme**, ‘Fitbods’ is a primary school physical activity project designed to encourage and support lunchtime assistants and teachers in the provision of games and activities during lunch breaks.

◆ Physical activity for older people

Physical activity promotion for older people should be both affordable and accessible. Greater impact will be produced if they address the psycho-social needs of older people, as well as combine fun and social activities with physical activity. Maximum benefit is more likely to be achieved if older people are proactively involved in the planning, implementation and evaluation of such programmes⁵⁶.

- **Salford and Trafford Health Promotion Service** have set up a ‘Healthy Hips and Heart’ initiative which runs a programme of gentle exercise for people over 65. Although it is more of an accident prevention programme, it is nonetheless a byproduct of coronary health in later life.

◆ Promoting the use of physical activity facilities for ethnic minorities

Ethnic minorities are often found to exercise less frequently than the majority community. Amongst men aged 40-64 in West London, for example, average weekly energy expended in walking, cycling and leisure-time activity was found to be 30% lower within the South Asian community in comparison with the white majority⁵⁷. Promoting leisure facilities and local community interventions in a culturally sensitive fashion may be a particularly effective strategy for ethnic minorities.

- A Women’s Exercise Group in Old Trafford is targeted predominantly at Asian women.
- **South Manchester PCT** have developed the Physical Activity Action Team (PAAT), a multidisciplinary group exploring and developing a model for a physical activity referral scheme.

⁵⁴ Cited in ‘Coronary Heart Disease: guidance for implementing the preventive aspects of the National Service Framework’, Health Development Agency (2000).

⁵⁵ Mulvihill, C et al (2000). Views of young people towards physical activity: determinants and barriers to involvement. Health Education, 100, 190-199.

⁵⁶ Walters, R et al. (1999) Proven strategies to improve older people’s health: a Eurolink Age report for the European Commission. Brussels: Eurolink Age.

⁵⁷ Coronary Heart Disease in South Asian communities: a manual for health promotion. Health Education Authority (1994). Eds McKeigue, P and Sevak, L

2.4 Overweight and obesity

Being overweight is closely associated with raised blood pressure and heightened blood cholesterol, which are both important risk factors for CHD⁵⁸. It has been estimated that about 5% of deaths in men and women are a consequence of obesity.

Body Mass Index (BMI) is generally used to measure body fatness ie weight (in kilograms) divided by height (in metres squared). A BMI score of 25-30 indicates overweight, and a score in excess of 30 denotes obesity.

Approximately 46% of men and 32% of women in England are overweight, and an additional 17% of men and 21% of women are obese. Overweight and obesity increase with age: in the 16-24 age range, 28% of men and 27% of women are either overweight or obese. However, within the 55-64 age range, this increases to 76% of men and 68% of women⁵⁹.

In recent years overweight and obesity have been increasing at an alarming rate. Since the mid 1980s the percentage of adults who are obese has roughly doubled.

◆ *Socio-economic Variations*

Obesity is more common in adults working in manual occupations, especially women. Roughly a quarter of women working in unskilled manual occupations are obese compared with a seventh of women employed in a professional role.

2.4.1 What can be done to reduce overweight and obesity ?

Life expectancy is reduced by obesity, mainly due to the effect of increased weight on related medical conditions. Recent evidence indicates that even modest weight losses of upto 5 kilograms may produce important health benefits⁶⁰.

The causes of overweight and obesity may vary, but the intake of energy must exceed its expenditure for weight gain to occur. Since the 1960s the amount of time spent watching television and the move to a more automated lifestyle (eg growth of domestic appliances, use of the motor car) have eliminated the amount of physical activity in daily life, resulting in a more sedentary population. Tackling overweight and obesity should focus on prevention, identification and treatment of obesity, as well as sustainability of weight loss after the intervention. It is also important to monitor the impact of the intervention: acute measurement of baseline data combined with clear objectives can support this.

Being obese or overweight is a behavioural risk factor relating to **Standard 1 of the NSF for CHD (see Section 2.2.1)**.

⁵⁸ Cited in Health Update, Coronary heart disease and stroke, Health Development Agency (2000)

⁵⁹ Cited in Coronary Heart Disease Statistics 2000, British Heart Foundation (2000)

⁶⁰ Hankey, C and Lean, M. The benefits of weight reduction and the maintenance of weight loss. Royal College of Physicians of Edinburgh Working Group on Obesity, 1995

◆ **Combination of diet, physical activity and behavioural therapy**

There is evidence that combined interventions are more effective than others focusing upon diet or exercise alone⁶¹. Successful outcomes are based upon effective partnership developments involving leisure facilities, primary care trusts (PCTs), health authorities (HAs) and local authorities. Professional input from dietitians and experts on physical activity could assist with this process.

◆ **Individual weight management integrated with population-wide interventions**

Strategies developed to tackle overweight on an individual basis may be most effective where they work alongside wider environmental interventions⁶². Mass media interventions could facilitate this kind of programme if it succeeds in encouraging a climate of change around issues concerning diet and physical activity.

◆ **Family therapy interventions to preventing obesity**

Obesity in childhood has increased significantly: it is a predictor of adult obesity, and children are more likely to be obese if they have an obese parent. Family therapy sessions (involving all members of the family rather than individual counselling for the obese child) have been found more effective in preventing the progression of obesity in 10-11 year olds than dietary or exercise therapies⁶³. Involvement of both parent and child is most effective, and the use of rewards has had a particular impact on reducing weight in children.

◆ **School-based programmes on diet and overweight**

The 'whole school' approach to prevent children becoming overweight or obese has been shown to be effective⁶⁴. Much of its success is dependent upon enabling diverse groups of professionals to work together, including local authorities, leisure facility providers, parents/carers and teaching staff.

◆ **Specialist weight loss clinics located within GP surgeries**

A weekly weight loss clinic directed by a health visitor has been found to be highly effective, to the extent that participants maintained weight loss even at one-year follow up. A recent study⁶⁵ found that a third of attenders achieved a 10% weight reduction, and of these 6% maintained this weight loss after a year.

⁶¹ Clinical Evidence (2000) : a compendium of the best available evidence for effective health care. London: BMJ Books.

⁶² Jeffery, RW (1995) Public health approaches to the management of obesity. Cited in CHD: Guidance for implementing the preventive aspects of the NSF on CHD.

⁶³ Flodmark, CE et al. Prevention of progression to severe obesity in a group of obese schoolchildren treated with family therapy. *Pediatrics* (1993) 91: 880-884.

⁶⁴ Story, M (1999) School-based approaches for preventing and treating obesity. *International Journal of Obesity and Related Metabolic Disorders*, 23 (supplement 7), s43-s51

⁶⁵ Sleath, C (1999). Can clinically significant weight loss be achieved and sustained ? An evaluation of a general practice based weight control clinic. *Journal of Human Nutrition and Dietetics*, 12, 28-31.

◆ **Individualised advice and risk assessment: group initiatives**

There is some evidence that group sessions centred upon achieving weight loss can be successful⁶⁶. Greater effectiveness can be achieved where appropriately tailored interventions can be aimed at specific groups to encourage compliance. Higher risk groups, including disabled people and ethnic minorities, might benefit from such an approach. Additional support for ethnic minority groups would involve recognising cultural / religious requirements and utilising staff with appropriate minority language skills.

◆ **Treating adult obesity: behavioural and dietary interventions**

Behavioural treatments by themselves seem ineffective in tackling obesity. However, avoidance of situations providing the temptation to overeat can be more effective than cognitive approaches involving role play to practice resisting overeating, or the social pressures involved⁶⁷. Daily weight charting can enhance the effectiveness of a behavioural programme.

◆ **Community-based education strategies with financial incentives**

Such programmes can be particularly effective in preventing adult obesity. Similarly commercial weight loss programmes, through operating within a group setting, may have a stronger impact through making the process of weight loss more enjoyable and so improving the psychological well-being of participants.

- **North Manchester PCT** has set up a pilot weight management programme through the city's Community Nutrition Service, which aims to develop an obesity strategy for the whole of Manchester. Currently based within GP practices in East Manchester, participants can be referred by any member of the primary care team (eg GP, practice nurse, Health Visitor or School Nurse).
- Upon referral, participants undertake a one-to-one interview with a dietician, which acts as a gateway to further services, including a counselling service and a healthy eaters' group. This pilot project is developing work to tackle obesity in schools, and is involved in joint initiatives with Sure Start and the New Deal for Communities in East Manchester. It hopes to develop a cross-referral strategy with Central Manchester Activity Partnership.

- **Merseyside HAZ**, in conjunction with Health Links (Specialist Health Promotion Service for Wirral) support the 'Take Five' Campaign to promote increased fruit and vegetable consumption, particularly in targeted areas of disadvantage. This initiative complements the national 'Five a Day' programme of initiatives aimed at encouraging consumption of five servings of fruit and vegetables each day.
- The campaign aims to enhance knowledge of the health benefits of fruit and vegetables in preventing disease, raise awareness of available foods in the local food economy and help local people (especially those on low incomes) to shop strategically and improve their cooking skills.

⁶⁶ Hughes, J & Martin, S (1999) The Department of Health's project to evaluate weight management services. *Journal of Human Nutrition and Dietetics*, 12, 1-8

⁶⁷ Effective Health Care. The prevention and treatment of obesity. April 1997, Volume 3, Number 2. NHS Centre for Reviews and Dissemination, University of York.

- **Health Links** (in conjunction with Wirral and West Cheshire Community NHS Trust) are supporting a scheme whereby patients attending Exercise and Lifestyle centres (ie at medium and low risk of coronary heart disease through obesity, high cholesterol, hypertension, smoking, diabetes or other condition) can receive vouchers for free fruit and vegetables.
- The scheme is run in conjunction with the Cooperative Society.
- Each patient receives six pounds worth of vouchers each week for six weeks (ie £60 per patient).

Section 3: Key Environmental Risk Factors

There is evidence to relate environmental factors, such as air pollution, environmental tobacco and water quality, to the likelihood of being affected by CHD. Such factors are beyond the immediate control of the individual, but their role may be highly significant in this regard. Tackling such risk factors requires concerted government action, as well as multi-agency partnership development across a range of statutory and non-statutory authorities.

3.1 Air Pollution

There is strong evidence of the link between air pollution and CHD. A large study of admissions to London hospitals between 1987-1994⁶⁸ found a strong association between outdoor air pollutants and acute myocardial infarction, regardless of weather and other risk factors. It concluded that “one in fifty heart attacks ... may be triggered by outdoor air pollution”. Carbon monoxide was found to be particularly injurious to cardiac health – a small increase in exposure to carbon monoxide may aggravate angina in susceptible people. Research within the US has linked outdoor particulate pollution with all cause mortality, especially with cardiopulmonary causes.

The UK National Air Quality Strategy has set objectives for reducing the concentration of eight major pollutants by 2005. Healthy individuals are not thought to be at significant risk from current levels of air pollution in the UK. However, studies have indicated an association between daily variations in levels of some pollutants with daily variations in mortality and hospital admissions, particularly for respiratory conditions. Most pollutants in Europe are the product of combustion from heating, power generation or from motor vehicle traffic. Key pollutants produced from industrial, domestic and traffic sources include sulphur dioxide, particulate matter, carbon monoxide, nitrogen dioxide and ozone.

Airborne particulate matter is largely produced by road traffic emissions, particularly from diesel vehicles. Their association with health effects include an increased risk of heart and lung disease. The Committee on the Medical Effects of Air Pollutants (COMEAP)⁶⁹ have highlighted an increase in cardio-respiratory death with increased particle concentration.

3.2 Environmental Tobacco Smoke (Passive Smoking)

Studies in the US have shown that passive smoking is an important risk factor for CHD. Regular exposure to passive smoking was found to double the risk of CHD amongst women who had never smoked (although no absolute rates were provided to enable a proper assessment in relation to active smoking). However, a meta-analysis of 19 studies provided strong evidence that exposure to environmental tobacco smoke caused a 23% increase in risk of CHD⁷⁰.

⁶⁸ Anderson, HR et al. Air pollution and daily mortality in London 1987-1992 *BMJ*; 312: 665-669

⁶⁹ Handbook on Air Pollution and Health (DOH, Committee for the Medical Effects of Air Pollutants), 1997

3.3 Water Quality

Some parts of the UK with hard water supplies have lower age-standardised rates for CHD mortality than other areas with soft water supplies⁷¹. Even when climatic and other socio-economic conditions are accounted for, this association remains significant. However, the magnitude of the effect is small when compared with other risk factors for CHD.

⁷¹ Shaper, AG. Water-hardness and coronary heart disease. In Golding AMB et al (eds) Water and Public Health (1994)

Section 4: The Wider Socio-Economic Determinants of CHD

Behavioural approaches to combating CHD can only have limited value. Approaches to tackling CHD clearly need to focus more acutely on the wider social and economic environment through developing policies at a macro-economic level.

This section seeks to discuss the key socio-economic factors impacting on coronary health. It also suggests programmes of initiatives that may help to reduce the incidence of CHD within the UK.

4.1.1 Income Inequalities

Income is an important determinant of the health status enjoyed by people within society. Over the past twenty years, there has been a sharp increase in income inequalities between the most and least affluent sectors of the population⁷². This growth in income inequalities has very serious consequences for CHD mortality rates, which is evidenced by international studies comparing income distribution and CHD rates. Mortality from CHD tends to be lower in countries where the income distribution is more even, and within all age groups the link between income inequality and CHD mortality is stronger among women than among men.

Reversing this trend can lead to significant improvements in CHD mortality. Countries which have had reduced income differences over time also experienced a faster rate of decline in CHD mortality for both men and women within different age ranges. High income inequalities in societies may equate to a greater sense of social hierarchy, leading to an increased sense of social inferiority, exclusion and low status amongst people on low incomes. This may explain higher mortality rates from CHD in some societies.

4.1.2 Material Poverty

The material effects of deprivation have a damaging impact upon health. The development of relative 'food poverty' in the most deprived parts of the UK means that although low income families spend a higher proportion of their incomes on food than higher income families, they are unable to purchase an adequate diet. The development of this 'food gap' results in lower fruit and vegetable consumption among low income families. In addition, the location of supermarkets away from city centres can mean that low income families in urban areas have reduced access to cheaper food as the cost of travel may be prohibitive⁷³.

Deprivation, poor life chances and the social pressures of having inadequate resources to enjoy a reasonable quality of life are often expressed through smoking patterns. High levels of smoking among low income families is often seen as a response to poverty, which in turn traps them further into poverty. The impetus for giving up smoking is often connected to a sense of optimism about the smoker⁷⁴, their families and their futures, yet families trapped in poverty are unlikely to share this sense of optimism. A high proportion of benefits paid to low income families is returned in the form of Tobacco Tax.

⁷² Looking to the future – Making coronary heart disease an epidemic of the past. National Heart Forum (1999)
Wilkinson, R The influence of income inequalities (Chapter Four)

⁷³ Leather, S (1996) The Making of Modern Malnutrition

⁷⁴ Marsh, A and McKay, S (1994) Poor Smokers. London: Policy Studies Institute.

Prevalence of CHD is usually concentrated in small pockets of deprivation, characterised by high unemployment, low incomes, low educational attainment and expectations and poor housing. These areas often contain higher concentrations of minority ethnic communities, and are often lacking in social cohesion and suffer from lack of social support.

4.1.3 Low Birthweight

Certain factors operating within foetal life may have an impact upon the risk of CHD in adult life⁷⁵. There is increasing evidence that as birthweight decreases, there is a complementary increase in the risk of coronary heart disease. This pattern is particularly well established for males, although it also appears in two studies for females. Current thinking suggests that adaptations made by the foetus in response to a lack of nutrition leads to changes in metabolism and organ structure which predispose the individual to coronary heart disease in later life.

4.1.4 Employment and Job Security

Changes within the labour market and working practices can have a highly significant influence on CHD. The Whitehall cohort studies have shown strong CHD mortality in intermediate and low grades of civil servants in comparison with higher grade civil servants, so that occupational status plays an extremely important role. Modern social hierarchies, therefore, seem to influence the likelihood of experiencing CHD even among office-based workers who are not living in absolute poverty.

The Whitehall studies also highlight low job control in the workplace as contributing to the development of CHD among civil servants⁷⁶. An important factor is the increased competitiveness in the economy and the creation of a more flexible labour market, which has increased work loads and time pressures on individuals within the workplace. This can create further stress and tension, leading to damaging health outcomes, including coronary heart disease.

Insecurity of employment also relates to CHD. The Whitehall II study found that self-reported health status measures for middle aged civil servants became significantly worse when anticipating a new job or job loss. Other civil servants in secure employment did not demonstrate such anxieties. Further research points towards income insecurity as a growing source of stress for certain groups of workers within the labour market.

4.1.5 Education

There is a strong relationship between educational achievement, employment and material / psychosocial rewards. Much evidence in the United States points towards important health gains in adult life as a result of educational / social interventions in childhood. Within the UK, CHD is strongly linked with a low level of education, which may reflect that education indicates socio-economic opportunities within childhood.

⁷⁵ Barker, DJP (ed) Foetal and Infant Origins of Adult Disease (1992) BMJ Books.

⁷⁶ Bosma, H et al. Low job control and risk of coronary heart disease in Whitehall II (prospective cohort) study. BMJ; 314: 558-565

Consequently education is more important for the opportunities it creates for socio-economic advancement rather than for the specific impact of education itself. People with low educational attainment are found to be least likely to take note of health education messages, such as those centred around smoking and diet. This can have an important influence for engaging in risk-taking behaviour in relation to CHD.

4.2 What Strategies Could be Effective in Tackling the Wider Socio-Economic Determinants of CHD ?

4.2.1 National Strategy to Reduce Social Inequalities in CHD

This would involve a strategic and population approach to tackling CHD and its factors. It would address general social inequalities, as well as particularly high rates among disadvantaged groups. Reducing inequalities would help reduce inequalities in other diseases whose determinants and risk factors are similar to those for CHD. A national strategy should address underlying social and economic factors that lead to poor health, as well as the environmental factors that encourage unhealthy behaviour.

4.2.2 A Life Course Approach

A national strategy should adopt a life course approach to reducing inequalities, beginning with a focus on children, and then more general deprivation in adulthood. The relationship between CHD and deprivation is so strong, taking in diverse factors such as maternal nutrition, educational opportunities and working conditions, that a life course approach would be particularly effective. It would recognise that increased risk from CHD is sustained from birth to adulthood, and that risk taking behaviours are often formed in childhood. Tackling health inequalities at a young age, and making children and young people the prime focus of a strategic approach, is essential.

4.2.3 Material Conditions of Poverty

Reducing income inequalities and addressing relative deprivation is likely to be effective in reducing inequalities in CHD. The focus should be on restoring opportunities and reasons for optimism for the whole of society, including the poor and socially excluded. Social, economic, health and environmental policies need to be fully integrated, and economic policies should take account of their health implications. The state benefits system should be reviewed, as some people are on such low incomes that to live and eat healthily is not possible. Local health strategies – such as Health Improvement Programmes - should focus on reducing social disadvantage and deprivation.

4.2.4 Lifestyle Approach: Tackling Behavioural Factors

There should be a strategy to tackle risk-taking behaviour through encouraging healthy lifestyles. This would include developing a tobacco strategy aimed at disadvantaged people. A national food strategy would strive to improve the diets of disadvantaged people by increasing consumption of fruit and vegetables, as well as looking at issues such as cost, availability and access to food. This could then lead to the development of local food strategies to address access

for low income families. Similarly a national physical activity strategy would seek to integrate activity into daily life, and address transport, education and environmental policies.

4.2.5 Psychosocial factors in employment

There should be a stronger drive towards developing policy around the design and management of employment. This should focus attention on three key factors: workload and the demands of work, lack of control over working conditions and social support in the workplace. National guidance would help employers develop their own policies around workplace health promotion interventions.

Section 5: Secondary Prevention of Coronary Heart Disease

This section highlights evidence-based practice in supporting patients that have been identified with CHD. Patients with established CHD have been shown to derive much more absolute benefit from reductions in factors such as raised blood pressure or cholesterol levels than others with no evidence of CHD. Consequently, secondary prevention, whether achieved through lifestyle changes or medical interventions, can be extremely effective.

This section also considers Standards 3 – 12 of the NSF for CHD. There are a variety of initiatives within the NW Region which relate to this part of the NSF. It is not possible within the context of this report to summarise all NW initiatives. Rather the objective is to provide examples of NW initiatives endeavouring to meet this part of the NSF for CHD.

5.1 Evidence from a Literature Review

Moher⁷⁷ (Anglia and Oxford Regional Health Authority) undertook a wide-ranging literature review of the evidence for effective interventions for secondary prevention and treatment of CHD. Here is a summary of some of the principal findings for six of the main coronary conditions.

Acute Myocardial Infarction (Heart Attack)

- The number of lives saved by defibrillation at the time of the heart attack may be as great as the number saved by early thrombolytic therapy in the community.
- Minimising the delay between the onset of symptoms and treatment with aspirin and thrombolytic therapy is vitally important: early treatment has the greatest benefit.
- Upon admission to hospital, patients should be considered for intravenous beta-blockers and ACE inhibitors

Post Myocardial Infarction

- Risk stratification following heart attack is important in identifying high risk patients and allocating resources
- Effective non-pharmacological interventions: stop smoking, rehabilitation and dietary adjustments ie increase consumption of fatty fish, rape seed / olive oils, and fresh fruit and vegetables
- Effective pharmacological interventions: antiplatelet drugs, treatment of hypertension, beta-blockers and lipid lowering.

⁷⁷ Moher, M. 'Evidence of effectiveness of interventions for secondary prevention and treatment of coronary heart disease in primary care: a review of the literature', Anglia & Oxford Regional Health Authority (1995)

Chronic Stable Angina

- Risk stratification is important in providing information for correct therapeutic options and allocating resources
- Antiplatelet treatment significantly reduces the coronary events.
- Pharmacological interventions with nitrates and calcium antagonists provide effective control of symptoms to some angina sufferers.

Unstable Angina

- As a potentially life threatening medical emergency, measures should be taken to ensure patients have prompt appropriate and effective treatment.
- Treatment should be managed in hospital.

Chronic Heart Failure

- Attention to non-pharmacological treatment is important.
- Most effective pharmacological treatments are diuretics and ACE inhibitors.

Atrial Fibrillation

- Antiarrhythmic drugs given long term are useful in preventing relapses to atrial fibrillation.
- The risks as well as the benefits of taking anticoagulants on a long term basis must always be considered.

5.1.2 Non-Pharmacological Interventions

Research indicates that both a 'Mediterranean' diet and increased consumption of oily fish can have a strong impact in reducing recurrence and mortality from CHD, whilst not reducing cholesterol, although this has only been investigated in small trials⁷⁶. The striking findings of these suggest that such a diet could have an important role in reducing mortality following a heart attack. Advice to stop smoking is highly effective amongst people who have had a heart attack, with upto a third giving up smoking. Aspirin appears to reduce mortality among people who have not had a heart attack, but are at high risk of such an event (eg unstable or stable angina).

Cholesterol is not a strong predictor of CHD events, and so screening programmes to identify people with high cholesterol is not advised. However, there is a strong body of evidence that reducing cholesterol in those at high risk of CHD, even where their cholesterol levels are not raised, reduces CHD mortality⁷⁹. Some randomised controlled trials have shown that changing

⁷⁸ A National Contract on Heart Disease and Stroke, Systematic Reviews of Relevant Evidence, NHS Centre for Reviews and Dissemination

⁷⁹ Cholesterol and CHD: screening and treatment. Effective Health Care 198; 4 (1), NHS Centre for Reviews and Dissemination (February 1998)

dietary content by reducing saturated fat intake can substantially reduce blood cholesterol levels⁸⁰.

5.1.3 Pharmacological Interventions

A fairly new class of cholesterol-lowering drugs – known as statins – have recently been developed and evaluated. A total of 22 published RCTs (randomised controlled trials) show that statins reduce the risk of CHD mortality by 25%. This degree of effectiveness compares very favourably with older cholesterol-lowering drugs. Statin treatment is as effective in older people as in middle-aged adults.

Systematic reviews of RCTs show that anti-hypertensive medication⁸¹ clearly reduces the risk of CHD mortality for people with high blood pressure. Research has clearly indicated that a reduction in blood pressure of at least 6mm of mercury reduces the risk of fatal or non-fatal MI by 14%. Trials of beta blockers carried out in patients recovering from heart attack suggest that they are effective in lowering hypertension⁸².

5.1.4 Management of Stable Angina

People showing symptoms of CHD such as angina are at a high risk of death from CHD. As they are at an elevated risk of having a cardiac event, and are easily identifiable, it is important that they receive effective interventions. There are two types of treatment: firstly, to reduce the symptoms and secondly, reduce the rate of progress of the disease. Interventions should always be accompanied by risk factor modification, including smoking cessation, weight reduction and dietary change. There are two main forms of intervention: non-invasive medical therapies and invasive procedures.

- **Medical therapies**

There is little major difference between beta-blockers and nitrates in relieving the symptoms of angina. A meta-analysis of RCTs showed that anti-platelet drugs are effective in significantly reducing the incidence of MI among patients with stable angina. Anti-platelet therapy illustrates even more marked reductions in the incidence of MI in high-risk patients, such as those with a past history of MI. Aspirin also produces some reduction in the incidence of MI in patients with angina or MI. Furthermore, evidence from a large RCT suggests that patients with angina and high total cholesterol levels should be considered for treatment with statins⁸³.

⁸⁰ Clarke, R et al Dietary lipids and blood cholesterol: quantitative meta-analysis of metabolic ward studies, *BMJ*, 1997; 314: 112-117

⁸¹ Collins, R & MacMahon, S. Blood pressure, antihypertensive drug treatment and the risk of stroke and CHD. *British Medical Bulletin* 1994; 50, 272-298

⁸² Yusuf, S et al. Beta blockade during and after myocardial infarction: an overview of randomised trials. *Progress in Cardiovascular Diseases*, 1985; xxvii, 335-371

⁸³ Standing Medical Advisory Committee, *The Use of Statins*, Dept of Health, May 1997

- **Surgical medical procedures**

Surgical processes are generally known as revascularisation, and there are two specific procedures⁸⁴.

- **Coronary Artery Bypass Graft (CABG)** involves taking a blood vessel from another part of the body and using it to construct a detour around the blocked part of the coronary artery. Blood can then use this new path to flow freely to the heart muscle.
- **PTCA (Percutaneous Transluminal Coronary Angioplasty)** involves the insertion of a catheter into a patient's coronary artery and the inflation of a tiny balloon in order to open a blockage and restore blood flow to the heart.

- **PTCA / CABG and medical therapy**

RCTs indicate that PTCA is more effective at relieving anginal symptoms than medical treatments, such as beta blockers and nitrates, especially in patients with more severe angina⁸⁵. However, although PTCA can improve symptom relief for some patients, it has not been shown to improve survival. Indeed PTCA was associated with an increased rate of non-fatal MI and death compared to medical therapy, largely due to early procedure-related events.

CABG has been shown to improve symptoms of angina and other indicators of quality of life over a period of 10 years compared to medical therapy⁸⁶. However, it carries enhanced initial risks of MI or death as compared to medical therapy. Potential benefits of CABG in improving event-free survival are probably only likely in patients at high-risk of CHD mortality. A meta-analysis of RCTs found that lower mortality for patients treated with CABG was confined to those at high risk.⁸⁷

- **PTCA and CABG**

A meta-analysis of individual patient data from 8 RCTs found that after a year, CABG was better at relieving anginal symptoms in both single and multivessel disease. Furthermore, PTCA was found to have a high rate of repeat intervention over the first year. PTCA was also found to have a variable rate of repeat revascularisation, ranging between 20% and 40%. However, no difference in mortality was found between both treatments.

PTCA is not regarded as suitable for patients with left main coronary stenosis, or those at very high risk (ie multi-vessel disease). The risk-benefit ratio, therefore, is in using PTCA in patients with less severe disease who are not getting adequate symptom relief on medical treatments, although there is little evidence that this will succeed in increasing survival.

⁸⁴ NHS Centre for Reviews and Dissemination, Effective Health Care: Management of Stable Angina, October 1997, Volume 3 No 5

⁸⁵ RITA-2 trial participants. Coronary angioplasty versus medical therapy for angina: the second Randomised Intervention Treatment for Angina (RITA-2) trial. *Lancet*, 1997; 350: 461-468

⁸⁶ Rogers, WJ et al. Ten year follow-up of quality of life in patients randomised to receive medical therapy or coronary artery bypass graft. *Circulation* (1990); 82, 1647 - 1658

⁸⁷ Yusuf, S et al. Effect of CABG on survival: overview of 10 year results from RCTs by the CABG Trialists Collaboration, *Lancet*, 1994; 344: 563-570

5.2 Meeting the NSF for CHD: Standards 3 - 12

Three NW Initiatives Embracing multiple standards of the NSF for CHD

Certain initiatives within the NW region encompass wide geographical areas. Their work covers a variety of NSF standards. Three key examples of such initiatives are as follows:

- CHD in Primary Care Support Team in Manchester
- CHD Collaborative in Manchester, Salford and Trafford
- Training & Development Project in Merseyside

5.2.1 CHD in Primary Care Support Team : Manchester

The city-wide CHD in Primary Care Support Team (or CHD Support Team) has been endorsed by all PCTs in Manchester. It is lead managed by Central Manchester PCT but works on a city-wide basis with all PCTs and their Primary Health Care Teams (PHCTs) to help deliver the NSF for CHD. The work of the Primary Care Support Team falls into two broad categories :

- **Working with PCTs and local acute trusts**

All of the PCTs in Manchester have created Local Action Teams or CHD Task Groups to meeting the primary care requirements of the NSF for CHD. The CHD Support Team works with these groups and contributes to their strategic and operational approach. An important outcome has been the development of a community-based cardiac rehabilitation course in north Manchester, which has increased service capacity and patient choice as per the NSF for CHD. The CHD Support Team has also established a city-wide CHD Steering Group, which includes all key strategic service planners, such as PCT CHD Leads, Service and Clinical Development Managers and Prescribing Advisers. This is an essential forum to inform their work, agree a shared vision for CHD and develop standardisation across Manchester. As an example, a city-wide NSF : CHD Minimum Data Set has been agreed.

- **Working with Primary Health Care Teams (PHCTs)**

Virtually all PCTs are implementing a model programme of support for the heart attack / coronary artery by-pass graft (CABG) patient and their immediate family. Furthermore PHCTs attend workshops designed to meet the needs of different professional groups with clinical updating, organisational issues, evaluation and teambuilding. These sessions are led by various professionals, including cardiac liaison nurses, pharmacists and community-based cardiac rehabilitation nurses. Ongoing educational sessions have evolved into a programme of modular based training around clinical and systems based issues from the NSF for CHD. Workshops have clear aims and learning objectives and individuals attend sessions based upon identified learning requirements. They are led by a variety of clinicians, including cardiologists, dieticians and health promotion experts. One-to-one advice and support has helped to enhance the multidisciplinary teams' practical skills, establish CHD patient registers and update protocols of care. University accreditation is currently being sought for the clinicians' course.

The CHD Support Team assists PHCTs in auditing the management of their new MI and CABG patients. It advises on the development of disease registers and audit of care of patients identified

within the NSF for CHD eg risk factor interventions (smoking, blood pressure, cholesterol and physical activity) and the prescribing of evidence based medications (aspirin, beta blockers, statins and ACE inhibitors). The development of lines of communication between PHCTs and their local acute trust is critically important in supporting integrated care, and the CHD Support Team plays a key role in facilitating this process of communication.

5.2.2 CHD Collaborative : Manchester, Salford and Trafford

The CHD Collaborative is a national programme which involves ten programme teams from across the NHS working together to create improved methods of service delivery for patients with suspected or diagnosed coronary heart disease.

The CHD Collaborative in the NW covers Manchester, Salford and Trafford. Drawing on the NSF for CHD, it aims to redesign the system by which prevention, diagnosis, treatment and care of those with CHD is delivered.

It has six projects that focus on redesigning the system of care delivery in the following areas in line with the NSF for CHD:

- **Secondary Prevention**

This project aims to deliver a package of timely, culturally appropriate and evidence based care for people with CHD in Manchester, Salford and Trafford. It works towards a smooth transition of care from hospital to home following a cardiac event through co-operating with Community Teams in restoring patients' confidence to self-manage their health.

Project targets include :

- 100% use of secondary prevention practice protocols
- 100% of eligible patients on practice CHD registers

- **Acute Myocardial Infarction**

This project emphasises collaborative working with pre-hospital, hospital and primary care areas to facilitate the patient's seamless journey along the CHD pathway.

Project targets include :

- Maximum call to needle time of 60 minutes, and door to needle time of 30 minutes for 95% of patients by April 2002
- 85% of patients to be able to book their follow up tests prior to discharge from hospital
- Of patients discharged from hospital, 85% to have information received by the Primary Care Team within 24 hours

- **Angina**

This project aims to improve the speed of access / diagnosis for patients with angina. Principal tools for achieving these aims are the introduction of care pathways, Rapid Access Chest Pain

Clinics (RACPCs) and access to timely and appropriate medication and investigations in primary and secondary care settings.

Project targets include :

- Increase the number of GP practices accessing RACPCs by 50%
- Pre-plan and schedule outpatient appointments to cardiologists
- Improve the use of effective medications and reduction of risk factors in patients by 50%

- **Heart Failure**

This project aims to improve the delivery of care for patients with suspected or diagnosed heart failure. Improved diagnosis, better developed care pathways and a stronger interface between primary and secondary care are seen as key elements in this approach, as well as the development of palliative care strategies for end stage heart failure patients and their carers.

Project targets include :

- 90% of patients to be able to book for their echocardiogram
- 90% of patients with established heart failure to be prescribed ACE inhibitors
- Reduce time delay between the onset of symptoms to definitive diagnosis

- **Revascularisation**

This project aims to improve the patient's experience of living with CHD.

Its targets include :

- Ensuring equitable access to cardiac revascularisation in Manchester, Salford and Trafford, whilst balancing patient need with capacity
- Reducing unnecessary delays in access to angiography and revascularisation, so that a target of 12 months overall wait from initial visit to GP to revascularisation can be achieved

- **Rehabilitation**

This project aims to deliver more effective local programmes of cardiac rehabilitation which engage with ethnic minority and disabled groups of patients. It also seeks to ensure that all programmes are accountable to the local population by use of individualised records of care.

Its targets include :

- 100% of patients covered by shared good practice
- 95% recall of patients not attending rehabilitation appointments through personalised approach
- Identification of alternative methods of service delivery to ethnic minority / disabled population to address access issues

5.2.3 Training and Development Project – Implementing the NSF for CHD : Merseyside

The project has the following aims:

- To provide a training and development programme to equip nurses across the Merseyside Health Action Zone (HAZ) with the skills and knowledge to implement the National Service Framework (NSF) for Coronary Heart Disease (CHD)
- To forge links between primary, secondary and tertiary care, facilitating a seamless service for patients who suffer from CHD in the Merseyside area.

The project has four facets:

1. A comprehensive, ongoing nurse education programme in CHD treatment and management.
2. Clinical support network groups, both within specialties (ie heart failure management) and across areas of provision of CHD management (ie nurses from primary, secondary and tertiary care who manage the same patients at different stages of their treatment).
3. Site visits to other areas to examine the delivery of care for patients with CHD, learn from their experiences and share information regarding effective initiatives.
4. An annual conference to share the benefits of the project both locally and nationally.

Summary of the project

Since the project commenced over 1000 nurses have attending at least one part of the three stage training programme in the management of CHD.

An evaluation of the first 100 practice nurses who attended stage one, which is a two-day training programme, has given positive results in increased knowledge in the management of CHD following attendance on the course. The same evaluation has been applied to nurses who have gone on to attend the second stage, which is a university accredited diploma level module. Highly positive results have been achieved.

Stage three involves biannual one-day updates. These are consistently oversubscribed, requiring additional sessions to be provided. The clinical support network groups and site visits have brought forth a wealth of information that supports an improvement in the understanding of different roles in the nursing management of patients with CHD across all levels of care delivery. One of the most significant issues raised has been the lack of skilled nurses in this field and the need to provide appropriate educational support to fill this gap. These findings feed into the ongoing development of the first stage of the project.

The first conference '*Tackling Heart Disease in Merseyside*' in February 2000 gave an opportunity to share the knowledge and experience gained during the first year of the project.

Merseyside HAZ is supporting research concerning immediate assessment of chest pain to facilitate safe discharge from A & E Departments for patients not experiencing cardiac pain. This study is based in Liverpool, and is intended to be a precursor to a larger study across the UK.

5.3 Standard 3 of the NSF for CHD: NW Initiatives to Prevent CHD in High Risk Patients

GPs and primary care teams should identify all people with established cardiovascular disease and offer them comprehensive advice and appropriate treatment to reduce their risk

- **Stockport PCT** has been awarded Beacon Status for its work in systematically developing and maintaining practice-based CHD registers within all GP practices in Stockport. A register enables a call and recall system to operate, which allows for regular patient follow up. An incentive scheme was set up to encourage the development of CHD disease registers (which predated publication of the NSF for CHD).
- Detailed guidance has been provided by a range of support staff in how to set up a disease register, with particular input from CHD facilitators, who have visited all GP practices and provided them with a CHD Resource Pack, entitled 'Fit for Life'. Practice-based pharmacists have supported practices in undertaking drug searches. A part-time dietetic facilitator has been appointed to support GP practices in relation to CHD.

- Stockport PCT's 'Fit for Life' pack contains an amended version of the Joint British Societies' recommendations on the prevention of heart disease, as well as the British Hypertension Society guidelines for managing hypertension. It provides advice for the primary health care team on developing protocols for organising chronic disease management, as well as information relating to risk factors.
- It shows how CHD registers can be set up, with information regarding the creation and monitoring of CHD computer templates for data collection. Once the templates are created, they are an efficient means of monitoring patients and providing structured care to people with CHD. Standardising the recording of information and encouraging the use of 'Read codes' (ie numerical codes indicating specific drug treatments or behavioural patterns) improves the quality of clinical audit and helps to accurately monitor patient outcome. Read code training has been provided for nurses and administrative staff.

- A protected time scheme has been established to enable practice teams to take time out from the daily pressures of work. It has been extended to all GP practices in Stockport, and it involves them being funded to close for eight half-day sessions a year (four of these for practice based activity, and the other four sessions allow attendance of all staff at Stockport wide workshops).
- These sessions promote practice development and teamwork in various aspects of primary care, including CHD. In addition, Stockport CHD Beacon events have been held to engage primary health care providers in Stockport with developmental work carried out to tackle CHD.
- **Chorley and South Ribble PCT** have also organised multidisciplinary educational events in three areas: Chorley, Leyland and Ribble Bank. These events enable different clinical staff to come together and gain a better understanding of each other's role in meeting the NSF for CHD. Coding workshops have been set up aimed at supporting greater accuracy and consistency in clinical coding.

- **South Manchester PCT** has made significant progress in supporting GP practices in summarising patient records, storing computerised CHD registers and having a dedicated person responsible for the maintenance of CHD registers. Furthermore, a high proportion of GP practices in south Manchester have a structured patient recall system.

- **Blackburn with Darwen PCT** have set up a Clinical Governance Incentive Scheme, which aims to ensure that CHD registers have been created and are recording information accurately, as well as ensuring that patients are seen regularly with an agreed protocol, template and training. This is intended to ensure that all GP practices use the same CHD guidelines.
- There are four steps within the incentive scheme. Step 1 involves creating an accurate and completely computerised register, which entitles GP practices to payment for developing patient resources, or other methods of supporting cardiac care of patients. Step 2 involves developing a practice protocol, computer template and recall system for caring for people with CHD. This entitles the practice to claim up to the cost of one practice nurse hour per year for each CHD patient, as well as administrative support time.
- The aim of the incentive scheme is to free up practice nurse time from more mundane duties, so that more time can be spent with patients. Step 3 aims to ensure that all patients diagnosed with CHD are taking aspirin. Step 4 aims to ensure all patients with CHD receive appropriate treatment and advice. In order to continue receiving practice nurse and administrative time reimbursement, GP practices must continually increase the proportion of patients being monitored on a quarterly basis.
- Bury and Rochdale health authority have developed a computerised CHD template that has been developed and installed across Bury and Rochdale.

- **Liverpool and Sefton PCG/Ts** have developed CHD registers, their GP practices have been supported by PCG Cardiac Specialist nurses and the NSF CHD Secondary Prevention protocol has been completed a year ahead of schedule. Furthermore, secondary prevention clinics are being run in all practices.

- Other health care systems in the North West have engaged with this process. Three GP practices within Central Manchester PCT are involved with the **Central Manchester Activity Partnership (CMAP)**. This pilot initiative enables them to refer patients aged 35-74 who they feel are at risk of CHD.
- CMAP's emphasis is on retaining the social environment of physical activity within a community framework, and to frame its activities under 'physical activity' rather than sport or exercise, which can dissuade people with negative connotations of competitive activity. Participants are introduced into gentle forms of physical activity which are appropriate to their needs. Another aspect of CMAP's work is to use the existing network of community and voluntary organisations and to incorporate the value of heart health into their activities.
- Using a variety of community settings (church halls, clubs, etc), CMAP works to introduce exercise as part of their normal activities. It has also trained members of ethnic communities, such as Irish Community Care, to deliver physical activity programmes within day care centres. Similar work has been developed with Age Concern, and trained participants can receive an NVQ in physical activity for elderly or disabled people.

- **Liverpool Central PCT** have taken part in a National HAZ Innovations Fund Project, which aims to establish a database within the PCG to identify people from minority ethnic backgrounds at risk of heart disease and ensure appropriate services are provided.

5.4 Standard 4 of the NSF for CHD: NW Initiatives to Prevent CHD in High Risk Patients

GPs and primary health care teams should identify all people at significant risk of cardiovascular disease but who have not developed symptoms and offer them appropriate advice and treatment to reduce their risks.

- **Stockport PCT** have developed a cardiovascular risk factor screening programme, with which all Stockport GPs are involved. It has been running for over ten years, and involves all patients at the age of 35 being screened for CHD risk factors within their practice: information including blood pressure, cholesterol levels, and family history is recorded. Patients are then subsequently tested on a five year basis ie at ages 40, 45, 50, 55, and 60.
- Where patients are identified as being at significant risk of CHD at any stage of the screening programme, this triggers a prevention programme which includes CHD management advice and support. This population-based screening programme enjoys strong support within Stockport: roughly 75% of patients attend screening appointments.

- **Trafford North PCT** has undertaken an extensive project which has involved support staff visiting all GP practices and identifying patients requiring secondary preventive treatment. Some databases in use had mainly been used for recording repeat prescriptions rather than for purposes of clinical diagnosis.
- Through interrogating computerised databases and focusing on the kinds of drugs prescribed, it is often possible to identify patients experiencing CHD and requiring secondary preventive treatment (eg certain drugs are specifically used for the treatment of angina). Other patients, however, might be prescribed drugs (eg betablockers) which may be prescribed for symptoms other than CHD. Upon identifying both definite and suspected CHD patients, computerised records relating to diagnosis, test results and prescriptions have been updated.
- Clinical staff within Trafford North PCT evaluated this information for its veracity (ie were patients with particularly kinds of CHD receiving appropriate medication ?) and advised GP practices accordingly. The project has enabled CHD patients, as well as those at significant risk of CHD, to be assessed regularly within GP clinics.

- An incentive scheme has enabled GP practices to apply for additional funds to cover the cost of employing a nurse's clerk, who can carry out mundane data entry and letter writing tasks normally done by the practice nurse. To be successful, the practice must indicate how many additional patients will be reached or followed up – they are paid £1 for every additional patient.
- Eight GP practices have benefited from being able to employ a nurse's clerk, which enables practice nurses to spend more time running clinics, and ensuring that patients are invited to attend appropriate clinics. The evaluation of the GP prescribing strategy and incentive scheme has recently received an award from the Primary Care Pharmacists Association.
- **Bury and Rochdale health authority** have appointed four Cardiac Nurse Specialists, who have responsibility for supporting the development and implementation of a programme of secondary prevention in primary care.

- Statins are proven to be effective in both the primary (high-risk) and secondary prevention of CHD.
- **Central Manchester PCT** have developed a new initiative which seeks to tackle the low prescribing of statins among its primary health care teams, as well as increase the appropriateness and necessity of statin prescribing. All GP practices have taken part in the project, which involved assessing whether patients prescribed statins are appropriately monitored.
- All patients currently prescribed statins were identified and their medical records audited according to six agreed standards (taken from the Manchester guideline for secondary prevention of CHD – *Integrated Care Project*). This initial audit illustrated a significant shortfall in achieving the suggested standards, although a subsequent re-audit carried out a year later showed a significant improvement in the appropriate prescribing of statins.
- Regular monitoring of statin prescribing patterns, particularly for patients with high cholesterol, can play an important role in improving patient care. The initiative has succeeded in increasing appropriate statin prescribing. It has helped to monitor patient treatment, so that it fulfils the requirements suggested by drug manufacturers for optimum patient care.

5.5 Standard 5 of the NSF for CHD: NW Initiatives to Treat Heart Attack and other Acute Coronary Syndromes

People with symptoms of a heart attack should receive help from an individual equipped with and appropriately trained in the use of a defibrillator within 8 minutes of calling for help, to maximise the benefits of resuscitation should it be necessary.

- **Greater Manchester Ambulance Service (GMAS)** has developed standardised protocols and procedures for managing patients with chest pain, acute myocardial infarction (AMI) and other coronary syndromes. It is also in the process of setting up a clinical governance website on an intranet site, which will contain clinical protocols which can then be downloaded and read by paramedic staff.

- **Heart Start UK** is a national initiative, coordinated by the British Heart Foundation, to promote and develop Emergency Life Support (ELS) training throughout the UK. ELS comprises essential actions needed to maintain life in an emergency, and includes dealing with an unconscious person who is breathing, performing CPR (cardiopulmonary resuscitation) and assisting a suspected heart attack victim
- Within the NW, Heart Start UK has a high profile, working with a combination of communities, schools, specific target groups and businesses.
- Greater Manchester has eight initiatives: five located in communities, two aimed at specific target groups and one linked to a business.
- Merseyside & Cheshire has thirteen initiatives: one located in a community, ten aimed at specific target groups and two within schools.
- Lancashire & Cumbria has nine initiatives: two located in communities, six aimed at specific target groups and one linked to a business.

5.6 Standard 6 of the NSF for CHD: NW Initiatives to Treat Heart Attack and other Acute Coronary Syndromes

People thought to be suffering from a heart attack should be assessed professionally and, if indicated, receive aspirin. Thrombolysis should be given within 60 minutes of calling for professional help.

- **GMAS NHS Trust** paramedics already administer aspirin, and it is intended that all paramedic emergency service personnel will be administering it before the end of 2001. GMAS NHS Trust is also in the process of reducing its call to hospital times for patients needing thrombolysis by re-educating paramedics in on-scene turnaround times. Changing the contemporary culture of working practices will go some way to achieving this, in addition to the development of a training programme to improve the assessment and diagnosis of cardiac related chest pain. As a consequence, 75% of patients requiring thrombolysis should arrive at hospital within 30 minutes of the initial call, which would help in meeting the aims of this standard (ie thrombolysis to be given within an hour of the call for help).
- GMAS NHS Trust will be considering the possibility of providing training for paramedics in reading and interpreting 12 Lead ECG (electrocardiograms), which will be used to decide whether a patient requires thrombolysis. This might enable paramedics themselves to provide pre-hospital thrombolysis to patients, rather than waiting for an ECG technician to carry out an ECG and confirm whether a patients has had a heart attack, which would serve to reduce call to needle time.
- GMAS NHS Trust is also currently piloting the use of hand-held computer diaries by paramedics in order to improve patient care. The diaries can be used to keep paramedics up-to-date with information regarding diagnosis and treatment for coronary events, as they provide rapid advice (in flow diagram form) of treatment and advice issues. This is particularly relevant for new drug therapies, where the evidence base may fluctuate.

- **Bury and Rochdale HA** has recognised the need for greater involvement of the nursing establishment to develop a comprehensive thrombolytic service. Consequently it has appointed two thrombolytic nurse specialists, based separately within the Bury and Rochdale Trusts, to implement radical changes in the management of acute myocardial infarction (AMI). They are intended to promote AMI and thrombolysis protocols, provide continual education to nursing staff, undertake clinical audit and supervise / educate junior doctors.

- **Merseyside HAZ** is looking to meet this standard through developing closer working links between their ambulance service and acute hospitals, and engaging front line staff in an initial process of evaluation. It is also carrying out a review of local and international practice in relation to thrombolysis, evaluating existing processes and investigating the use of ambulances to hospital telemetry.

5.7 Standard 7 of the NSF for CHD: NW Initiatives to Treat Heart Attack and other Acute Coronary Syndromes

NHS Trusts should put in place agreed protocols / systems of care so that people admitted to hospital with proven heart attack are appropriately assessed and offered treatments of proven clinical and cost effectiveness to reduce their risk of disability and death.

- **GMAS NHS Trust** already have and work towards standardised protocols and procedures for managing patients with cardiac chest pain, acute MI or other syndromes. These protocols include CPR and defibrillation, pain relief, aspirin and immediate transfer to hospital. All protocols are being reviewed, ultimately resulting in a 'Clinical Standards Manual' which will form the basis for all paramedic pre-hospital emergency patient care.
- The clinical audit department is being developed to focus on audit trails becoming more accessible and 'in line' with the practice of other health care professionals. This is being achieved through collaboration with the Greater Manchester Accident and Emergency Consultants Forum, who have agreed to share relevant NSF data for common data collation.
- Both of the Trusts in Bury and Rochdale have similar clinical standards which will be unified and converted into an agreed hospital-wide protocol.

5.8 Standard 8 of the NSF for CHD: NW Initiatives to Investigate and Treat Stable Angina

People with symptoms of angina or suspected angina should receive appropriate investigation and treatment to relieve their pain and reduce their risk of coronary events.

- **Bury & Rochdale HA's Cardiac Implementation Team** has developed RACPCs at two sites, and has agreed patients referral criteria and procedure (including routine tests at GP surgery or hospital). Referrals made to the Chest Pain Clinic Service are seen within two weeks of the referral being made. Four clinics per week (two at each Trust) have been introduced and run parallel to current cardiology outpatient clinics. Agreed clinical assessment procedures are in place, including having an ECG on arrival, undertaking an exercise treadmill test and then being assessed by a Cardiac Nurse Specialist. These clinics are intended to be one-stop clinics: those requiring cardiac follow-up receive routine appointments for the Cardiology Outpatient clinic.
- Meeting staffing needs is an important element of the strategy pursued at Bury & Rochdale HA. Consequently a cardiologist has been appointed to supervise the RACPCs – this is seen as more efficient in that an individual requiring further investigation within the RACPC can access this immediately from the cardiologist, thus reducing patient anxiety and additional delay that would be incurred by referral to cardiac outpatients clinic.
- A Cardiac Nurse Specialist has been appointed to run the RACPCs, and is responsible for assessing referred patients, developing a hospital-wide protocol for investigating angina and suspected angina, ensuring education and secondary prevention and disseminating hospital-wide clinical standards for CHD. Further roles include establishing close links with other nurse specialists, and with the Specialist Smoking Cessation Service.

- **Merseyside HAZ and St Helens & Knowsley HA** Health Improvement Plan Reward Scheme have supported the development of the National Refractory Angina Centre at the Cardiothoracic Centre (CTC) in Liverpool. The work at the Centre was recognised by the awarding of the Nye Bevan Award. It operates a patient-centred approach to enhancing drug therapy and self management for patients who continue to suffer from angina and would not benefit from revascularisation. It has been shown to improve patients' quality of life.

5.9 Standard 9 of the NSF for CHD: NW Initiatives to Support Revascularisation

People with angina that is increasing in frequency or severity should be referred to a cardiologist urgently or, for those at greatest risk, as an emergency.

- **The Greater Manchester Health Authorities** are developing a long term investment plan to facilitate achievement of the NSF targets. The plan will build on the recommendations of the Dargie strategy for invasive and tertiary cardiac services in the North West. All tertiary services in Greater Manchester are specialist commissioned and have been funded from earmarked money and Boyle funds.
- In 2000/20001 investments of NSF and Boyle monies facilitated an additional 329 revascularisation procedures (PTCAs and CABGs) compared to the previous year's service agreement. Greater Manchester Health Authorities have invested additional funds to consolidate all Boyle activity funded in 2000/2001, and to provide an additional 384 procedures compared to last year's outturn.

- **Merseyside HAZ's CHD Programme** has introduced Rapid Access Chest Pain Clinics (RACPCs) into each of the five Acute Trusts within the HAZ zone. The number of weekly clinics within each Trust varies, and the Trusts are at various stages of developing referral protocols. The HAZ has adopted a patient-centred approach, which includes counselling in a multi-disciplinary setting and the use of non-invasive treatment therapies before considering the application of invasive therapies.

5.10 Standard 10 of the NSF for CHD: NW Initiatives to Support Revascularisation

NHS Trusts should put in place hospital-wide systems of care so that patients with suspected or confirmed CHD receive timely and appropriate investigation and treatment to relieve their symptoms and reduce their risk of subsequent coronary events.

- **Merseyside HAZ** has acknowledged limited local capacity for the surgical treatment of CHD by developing revascularisation services at the Cardiothoracic Centre (CTC) in Liverpool. Over the past year, short-term measures have been put in place to boost the throughput of patients at CTC receiving both Coronary Artery Bypass Graft (CABG) and Percutaneous Transluminal Coronary Angioplasty (PTCA).
- A combination of Merseyside HAZ and mainstream funding will allow for additional operating theatres and catheterisation laboratories to be built and staffed at CTC, which will lead to a permanent increase in the capacity for revascularisation procedures per year in the Merseyside Zone. A target has been set for an additional 100 CABGs and 55 PTCAs within the CTC. Over the next year, it intends to buy the services of an additional surgeon at CTC.

- **Manchester, Salford & Trafford HAZ** undertook an equity profile ('Heart Health For All') which highlighted inequity in the rate of revascularisation procedures in different parts of the HAZ zone. Certain areas had low procedure rates despite high levels of deprivation and mortality, whilst other areas had high procedure rates despite lower levels of deprivation and mortality. As a consequence of the equity profile, a series of practice visits within each PCT has been arranged to validate the data and assess referral practices within general practice.
- Future performance management arrangements must include the requirement that PCTs and general practices within them assess equity of access and develop robust action plans, driven by well-defined policies, to assess over or underprovision of services.
- **Stockport PCT** has an agreed network-wide protocol for the identification, referral, investigation and treatment of people who may benefit from coronary revascularisation. Greater Manchester health authorities are developing a long-term investment plan that will support equity of access to tertiary services, as well as a coordinated approach to increasing facilities.

5.11 Standard 11 of the NSF for CHD: NW Initiatives to Manage Heart Failure

Doctors should arrange for people with suspected heart failure to be offered appropriate investigations (eg electrocardiography, echocardiography) that will confirm or refute the diagnosis. For those in whom heart failure is confirmed, its cause should be identified – treatments most likely to both relieve their symptoms and reduce their risk of death should be offered.

- **Chorley and South Ribble PCT** have recognised that the process of referral for an echocardiograph via GP and cardiologist can be fairly convoluted, and may create excessive demand for services. Consequently it is exploring the possibility of setting up a direct access service, whereby GPs can make referrals for patients to be seen by a cardiologist during their visit to GP surgery.
- **Within South Manchester PCT**, a significant number of GP practices have achieved consistency in identifying patients with heart failure. Furthermore a pilot project has been undertaken within two GP practices to test the methodology for identifying patients with heart failure, as well as to assess their clinical management needs.
- As a consequence of this project, the **South Manchester University Hospitals Trust's Heart Failure Sub-group** are developing work around diagnosis and treatment protocols, primary health care team training needs and the availability of electrocardiograph equipment and expertise. This will create a framework for rolling out a model for heart failure management in primary care.

Aintree Hospitals NHS Trust has achieved Beacon status for their Heart Failure Service. This involves a dedicated hospital based nurse who supports Primary Care and Community Services regarding heart failure patients.

5.12 Standard 12 : Cardiac Rehabilitation

NHS Trust should put in place protocols/systems of care so that, prior to leaving hospital, people admitted to hospital suffering from CHD have been invited to participate in a multidisciplinary programme of secondary prevention and cardiac rehabilitation. The aim of the programme will be to reduce their risk of subsequent cardiac problems and to promote their return to a full and normal life.

Studies of cardiac rehabilitation services tend to fall within two categories: those which are exercise-based and those which attempt to evaluate the additional impact of psychological and educational interventions.

□ Exercise

A systematic review⁸⁸ found that exercise had a positive impact on patients' physical ability to exercise, as well as on physiological measure of cardiac disease. Not enough evidence exists to compare different levels of exercise intensity. However, exercise alone had no significant effect on morbidity (evaluated by non-fatal MI s) or overall mortality rates, despite a trend towards a beneficial effect with respect to angina. Exercise as a sole intervention has a positive impact on the physical aspects of recovery, but impacts on the psychosocial aspects are unclear.

- **Manchester, Salford and Trafford HAZ** have commissioned Manchester Metropolitan University to undertake a mapping exercise of all physical activity initiatives within the city. The aim is to produce a directory of physical activity initiatives which primary health care teams and rehabilitation professionals can recommend to patients.
- It is intended to be an ongoing process, whereby the directory is constantly updated, thus enhancing its sustained practical value. Members of the public in each PCT area are being recruited to undertake the work, prior to which they receive accredited training.

□ Psychosocial and educational interventions

Patients have identified their prime requirement as practical, honest advice concerning their condition. Psychosocial interventions can include patient education, counselling and behavioural interventions, and these have been shown to affect risk factors including blood pressure and cholesterol levels. They have been shown to produce significant improvements in psychosocial well-being and patient knowledge, especially in relation to the benefits of activity. Such psychosocial interventions can significantly reduce morbidity and mortality in patients with CHD⁸⁹, and may produce a 46% reduction in non-fatal cardiac events at two-year follow-up.

In-patient education has been shown to produce significant improvements in smoking behaviour, activity levels and other activities to improve health. Furthermore, education of both patient and partner can lead to improved knowledge, lesser disability and improved health behaviour. Information relayed by health professionals may also be inadequate. There is evidence that often

⁸⁸ Wenger, NK et al. Cardiac rehabilitation as secondary prevention. Agency for Health Care Policy and Research (1995)

⁸⁹ Mullen, PD et al. A meta-analysis of controlled trials of cardiac patient education. Patient Education Counselling (1992); 19: 143-162

patients have not understood educational material, and information-giving procedures can be inadequate, inconsistent and inaccurate.

- **Trafford South PCT** is funding a distance learning training course, run by the Primary Care Training Centre in Bradford, for both practice and district nurses and health visitors. The course comprises six sections on different aspects of CHD risk and rehabilitation: general aspects of CHD and preventive medicine; risk factors (both behavioural and non-behavioural), diagnosis and monitoring (eg checking blood pressure, using ECG); interventions (both pharmacological and non-pharmacological); compiling CHD registers and their value; and CHD and ethnic minority groups.
- The course encourages nurses to apply their learning to a live situation, and their training enables students to receive credits which can be transferred to a diploma level course.

- **South Manchester PCT** has developed a community-based Cardiac Rehabilitation Programme centred around a health care centre. A multidisciplinary approach includes involving a community physiotherapist as part of the cardiac rehabilitation team, so that specific advice concerning mobility problems may be offered. Long term goals include improving levels of communication through the Primary Care Collaborative, as well as implementing the city-wide protocol for cardiac rehabilitation.

□ **Combined exercise and psychological – educational interventions**

Combining exercise with multifactorial programmes (including patient education and counselling) can lead to improvements in risk factors, particularly in relation to reduced lipids and blood pressure. Data from three published meta-analyses suggest a reduction in cardiac mortality of about 20-25%, although no significant effect on non-fatal re-infarctions was found. It may be that the benefits of appropriate cardiac rehabilitation are greater in patients with more severe cardiac disease.

- **Salford PCT** is piloting a cardiac rehabilitation service within a community setting, which it intends to audit and, if successful, reproduce at a second community site. Two cardiac nurses have been appointed, in addition to a CHD dietician. The pilot programme focuses on the six week period between discharge from Hope hospital after cardiac event (heart attack, bypass surgery, angioplasty) and commencement of hospital rehabilitation. It is based on research evidence regarding the increased likelihood of patients engaging in risk taking behaviour (eg smoking) and the onset of depressive moods during this period.
- The rehabilitation programme runs twice a week for eight weeks, and will have approximately ten participants. It incorporates education, exercise, physiotherapy involvement and stress / relaxation therapy. The educational components include watching videotapes produced by the British Heart Foundation, talks on smoking cessation / other risk factors and recommencing sexual activity. Both cardiac nurses are trained as intermediate advisers in smoking cessation. The exercise component includes a variety of aerobic exercises that raise the heart rate eg circuit training, treadmill, rowing machines and exercise bikes. Physiotherapy involvement considers joint problems, both individually and within a group context. The stress and relaxation element involves discussions on stress management, and appropriate methods of relaxation.

- A programme of support for cardiac surgery patients and their families has been developed as a framework for cardiac rehabilitation in Manchester. In addition to supporting people after a cardiac event, it aims to influence the underlying cause of CHD and to encourage patients to achieve the best physical, mental and social condition.
- This model of care, which provides home visits and works with both patients and families / carers, leads seamlessly into secondary care and involves the entire primary health care team, including health visitors and district nurses. Psychological support for the patient and family has been highly significant.

The programme has four objectives :

- Support patients and families through the rehabilitation process, promoting risk factor management and emotional / psychological well-being
- Offer easy access for patients with heart disease
- Support and guide the patient and family towards a more active and healthier lifestyle
- Provide an environment where people can gain support and reassurance

There are four phases comprising the programme :

- Phase I: In-hospital

Involves a variety of procedures, including an assessment of physical, psychological and social needs for cardiac rehabilitation, social assessment and familial / carer needs, initial advice on lifestyle and prescription of effective medication, with education about its use. A complete individual patient plan is produced.

- Phase II: Early Post-Discharge

Continuation of cardiac risk assessment, including blood pressure, BMI, medical history, current medications and family history of premature CHD and other illnesses. Other assessments relate to emotional / psychological needs, and there is provision of lifestyle advice.

- Phase III: Four Weeks Post-Event

This part of the programme continues for three weekly sessions for 6-9 weeks. Its content includes structured physical activity sessions to meet the needs of individual patients, further assessment of emotional / psychological needs, and access to relevant advice / support from people trained in exercise, relaxation, health promotion and psychological interventions.

- Phase IV: Follow-up and Long Term Maintenance

This part of the programme continues for 12 weeks or longer, depending upon patient needs. It includes cholesterol check and review of risk reduction measures against individual patient plan, as well as long term follow-up and risk management in primary care, and involvement with Cardiac Support Groups and Active Heart Schemes. Further approved community-based initiatives are offered.

Section 6: Coronary Heart Disease : Glossary

<i>ACE inhibitor</i>	A drug. ACE stands for 'angiotensin converting enzyme'
<i>Aerobic exercise</i>	Repetitive, rhythmic exercise involving large muscle groups. Examples include brisk walking, cycling and swimming.
<i>Angina</i>	Heaviness or tightness in the centre of the chest which may spread to the arms, neck, jaw, face, back or stomach. Caused when the arteries become so narrow that not enough oxygen-containing blood can reach the heart muscle when its demands are high - such as during exercise.
<i>Angiogram</i>	An X-ray picture of the blood vessels which shows where the arteries are narrowed and how narrow they have become. A fine, hollow tube called a 'catheter' is introduced into an artery in the forearm or groin and is gently advanced through the blood vessels. A dye is then injected into the blood vessels and X-rays taken from several angles. This allows a 'road map' of the blood vessels to be drawn, showing where they are narrowed and how narrow they have become. This procedure may be carried out to examine the coronary arteries (a coronary angiogram) or other arteries in the body.
<i>Angiography</i>	A test to show where the arteries are narrowed and how narrow they have become.
<i>Angioplasty (or PCTA)</i>	A treatment to improve the blood supply through an artery. A catheter (a fine, hollow tube) with a small inflatable balloon at its tip is inserted into a vein in the groin and passed through to the narrowed artery. The balloon is then gently inflated so that it squashes the fatty tissue responsible for the narrowing, and widens the artery.
<i>Anticoagulant</i>	A drug used to reduce the risks of blood clots forming.
<i>Anti-platelet drug</i>	A drug to prevent the clotting of blood. Anti-platelet drugs act by reducing the 'stickiness' of platelets - the small blood cells that can clump together to form a clot.
<i>Arrhythmia</i>	A disorder of the heart rhythm.
<i>Artery</i>	A main blood vessel carrying blood from the heart to the rest of the body.
<i>Aspirin</i>	An anti-platelet drug used to help prevent blood clots forming.
<i>Atherosclerosis</i>	The build-up of fatty materials within the walls of the arteries.
<i>Atrial Fibrillation</i>	A type of arrhythmia which can produce unpleasant palpitations and breathlessness
<i>Beta-blocker</i>	Beta-blockers are drugs that block the actions of the hormone adrenaline that makes the heart beat faster . They are used to help prevent attacks of angina, to lower blood pressure, to help control abnormal heart rhythms, and to reduce the risk of a further heart attack in people who have already had one.

<i>BMI</i>	Body mass index. A formula to work out whether a person is overweight, calculated by dividing weight (in kilograms) by height (in metres ²). People with a BMI of 25-30 are considered overweight. Those with a BMI over 30 are obese.
<i>Cardiac arrest</i>	When the heart stops pumping, and quivers or 'fibrillates' instead.
<i>Cardiac catheterisation</i>	A procedure to obtain information about the blood pressure within the heart, the function of the pumping chambers and valves, and the severity and position of any narrowings in the coronary arteries. A catheter - a long, flexible, plastic tube, roughly the diameter of the lead in a pencil - is inserted into a vein or artery either in the groin or the arm. Using X-ray screening, an operator directs the catheter through the blood vessels and into the correct position within the heart. X-ray films are then taken by injecting a fluid down the catheter and running a camera. The test takes between 20 minutes and an hour and is done under local anaesthetic.
<i>Cholesterol</i>	A fatty substance mainly made in the body by the liver. Cholesterol plays a vital role in the functioning of every cell wall throughout the body. It is also the material which the body uses to make other vital chemicals. However, too much cholesterol in the blood can increase the risk of getting coronary heart disease.
<i>CABG</i> <i>Coronary Artery Bypass Graft</i> <i>Coronary (or ischaemic) heart disease</i>	An operation to bypass a narrowed section or sections of coronary arteries and improve the blood supply to the heart. When the walls of the coronary arteries become narrowed by a gradual build-up of fatty material called atheroma. When atheroma affects the coronary arteries, it can cause angina, heart attack or sudden death.
<i>Coronary thrombosis</i>	When a blood clot forms in a coronary artery and causes a heart attack.
<i>Defibrillator</i>	A device which delivers a controlled electric shock through the chest wall to the heart, in order to restore a normal heartbeat.
<i>Diuretic</i>	Diuretics increase the output of water and salt in urine. They are used to treat heart failure and lower blood pressure.
<i>Echocardiogram</i>	An ultrasound picture of the heart which shows the structure of the heart and how it is working. A pulse of high frequency (inaudible) sound is transmitted through the skin of the chest by placing a recorder (probe) on the chest wall. Jelly is rubbed on the chest first, to help make a good contact. The probe then picks up the echoes reflected from various parts of the heart and displays them as an echocardiogram – a picture on a screen.
<i>Electrocardiogram</i>	Also known as 'ECG'. A test to record the rhythm and activity of the heart. Small metal patches, set in sticky plaster, are put on the arms, legs and chest and are connected to a recording machine. This recorder picks up and amplifies the electrical signals produced by each heartbeat. A few beats are recorded from each set of electrodes and recorded on paper. An ECG can detect abnormalities of heart rhythm. It can tell if a person has had a heart attack, either recently or some time ago. It can also give information on whether the heart has become enlarged or is working under strain.

<i>Heart attack (also known as Myocardial Infarction)</i>	When one of the coronary arteries becomes blocked by a blood clot and part of the heart is starved of oxygen. A heart attack usually causes severe pain in the centre of the chest. The pain lasts for more than 15 minutes, and may last for many hours. The pain usually feels like a heaviness or tightness which may also spread to the arms, neck, jaw, face, back or stomach. In some cases the pain may be mistaken for indigestion. There may also be sweating, light-headedness, nausea or shortness of breath. A heart attack may cause the rhythm of the heart to become disturbed. Sometimes a heart attack is 'silent' and produces little discomfort. It may even remain undiscovered until a medical investigation for other symptoms or a routine medical examination.
<i>Heart failure</i>	When the pumping action of the heart is inadequate.
<i>Hypertension</i>	High blood pressure
<i>Lipid-lowering drug</i>	A drug to lower cholesterol level
<i>Lipids</i>	Fatty substances in the blood, including HDL cholesterol, LDL cholesterol and triglycerides.
<i>Nitrate</i>	A drug that is useful in relieving angina pain.
<i>Obesity</i>	Being excessively overweight, or carrying an excess accumulation of body fat.
<i>PTCA (Percutaneous Transluminal Coronary Angioplasty)</i>	Percutaneous transluminal coronary angioplasty: a form of revascularisation which involves inserting a catheter into a patient's coronary artery and inflating a tiny balloon in order to open a blockage and restore blood flow to the heart.
<i>Platelets</i>	Small blood cells.
<i>Polyunsaturated fat</i>	A type of fat found in foods from plant and fish, such as cornflower oil, sunflower oil, fish oil, and some margarines and spreads. Eating polyunsaturated fats rather than saturated fats helps to reduce the blood cholesterol level.
<i>Rehabilitation programme</i>	A programme for people who have had a heart attack or heart surgery covering: exercise, relaxation, and information on lifestyle and treatment. The structure of the programme can vary but patients usually start the programme about six weeks after a heart attack or heart surgery. It may involve attending once or twice a week for between six and eight weeks, although some programmes last longer.
<i>Revascularisation</i>	A procedure that either opens up the existing blood vessels or encourages new ones to form. There are two types: CABG and PTCA.
<i>Risk factor for coronary heart disease</i>	Something that can increase the risk of getting coronary heart disease. Risk factors can include smoking, high blood pressure, high blood cholesterol and physical inactivity, obesity, diabetes and family history.
<i>Saturated fat</i>	A type of fat found mainly in food from animal sources (particularly dairy and meat products).

<i>Statin</i>	A drug used to reduce cholesterol levels.
<i>Thrombolysis</i>	Treatment to help dissolve a clot blocking an artery.
<i>Thrombosis</i>	Formation of a blood clot in the blood vessels or heart.
<i>Unsaturated fat</i>	A type of fat found mainly in foods from plant and fish sources. They include polyunsaturated fats and monounsaturated fats. Eating unsaturated fats rather than saturated fats helps to reduce the blood cholesterol level.
<i>Ventricular fibrillation</i>	A life-threatening disturbance in the heart rhythm which causes the heart to quiver or 'fibrillate' in a disordered way.
<i>Warfarin</i>	A type of anticoagulant drug, used to reduce the risk of blood clots forming.

Section 7: Coronary Heart Disease: Useful Websites

The following websites provide useful information relevant to heart health. Most of them are linked to the British Heart Foundation website. They have been organised according to the type of information they provide.

- **Educational resources**

BBC Education: Fighting Fat, Fighting Fit	http://www.bbc.co.uk/health/fightingfat/
BBC Education: Heart Special	http://www.bbc.co.uk/education/health/heart/
BBC Education Web Guide	http://www.bbc.co.uk/education/home/
Heart Point	http://www.heartpoint.com/
Mind, Body and Soul This site is aimed at Key Stage 4 pupils aged 14 – 16 years	http://www.mindbodysoul.gov.uk/
National Cycle Network	http://www.nationalcyclenetwork.org.uk
North West Cycling Project	http://www.cycling.org.uk/
Walking the way to health BHF and the Countryside Agency	http://www.whi.org.uk/
Wired for Health This is the main online information source for the UK Government's Healthy Schools Programme	http://www.wiredforhealth.gov.uk/

- **Government / NHS Links**

Department of Health Home Page	http://www.doh.gov.uk/dhhome.htm
Health Development Agency	http://www.hda-online.org.uk/
North West Public Health Observatory	http://nwpho.org.uk/

- **Heart foundations and similar organisations**

Action on Smoking and Health (ASH)	http://www.ash.org.uk/
British Heart Foundation	http://www.bhf.org.uk/
Children's Heart Foundation	http://www.childrens-heart-fed.org.uk/
National Heart Forum An alliance of organisations working to reduce the risk of CHD in the UK	http://www.heartforum.org.uk/

No Smoking Day

<http://www.nosmokingday.org.uk/>

QUIT

UK charity helping smokers to give up

<http://www.quit.org.uk/>

Resuscitation Council (UK)

Provide educational materials on effective methods of resuscitation

<http://www.resus.org.uk/>

- **Support networks and local groups**

Help and advice for friends, families and professionals concerned with children with heart disorders

<http://www.childrens-heart-fed.org.uk/>

National Heart Support Association - Heart Link

A support group for all heart patients of any age and their carers

<http://www.heartlink.org.uk/>

The British Heart Foundation Cardiac Rehabilitation Research Unit

Provides a list of all Cardiac Rehabilitation Programmes in the UK

http://www.york.ac.uk/depts/hstd/cardiac_rehab/cr_programmes.htm

Appendices

I. Prevalence of morbidity within NW Region

The following tables illustrate the diversity of health behaviour and experience within different parts of the North West. All of the data is taken from the Health Survey for England 1994-1996 (Department of Health), and has been produced by Social and Community Planning Research (SCPR).

The European Standard population has been used to calculate the age-standardised figures. Age standardisation is used to adjust for the effects of any differences in the age distribution of the sample, and so is particularly useful when making comparisons between different areas.

Note: in the Significance Indicator column, “H” or “L” values (emboldened) identify health authorities whose standardised estimates are significantly higher or lower than the average for England at the 95% confidence level. ‘N’ indicates that the standardised estimates are normal (ie approximate to the average for England).

Prevalence of Acute Sickness by Health Authority

North West Region	Health Authorities	Standardised Rate per 100: Mean (Males)	Significance indicator (Males)	Standardised Rate per 100: Mean (Females)	Significance indicator (Females)
Greater Manchester	Bury & Rochdale	15.5	N	20.3	N
	Manchester	14.3	N	14.8	N
	Salford & Trafford	18.4	H	23.9	H
	Stockport	10.6	N	14.1	N
	West Pennine	21.8	H	16.6	N
	Wigan & Bolton	16.0	N	18.8	N
Merseyside & Cheshire	Liverpool	15.0	N	21.7	N
	North Cheshire	11.6	N	17.4	N
	South Cheshire	13.3	N	15.3	N
	Sefton	14.2	N	19.7	N
	St Helens & Knowsley	17.2	N	18.9	N
	Wirral	17.3	N	18.9	N
Lancashire & Cumbria	East Lancashire	18.7	N	14.4	N
	South Lancashire	10.4	N	12.5	N
	North West Lancashire	18.2	N	10.3	L
	North Cumbria	7.5	L	13.6	N
	Morecambe Bay	11.5	N	16.6	N

Proportion with Self-assessed Fair, Poor or Bad Health by Health Authority

North West Region	Health Authorities	Standardised Rate per 100: Mean (Males)	Significance indicator (Males)	Standardised Rate per 100: Mean (Females)	Significance indicator (Females)
Greater Manchester	Bury & Rochdale	26.6	N	29.1	N
	Manchester	27.7	N	33.8	H
	Salford & Trafford	24.0	N	27.3	N
	Stockport	17.5	N	18.5	N
	West Pennine	21.1	N	26.0	N
	Wigan & Bolton	31.4	H	27.4	N
Merseyside & Cheshire	Liverpool	29.5	H	29.2	H
	North Cheshire	30.1	H	26.8	N
	South Cheshire	19.9	N	23.6	N
	Sefton	16.5	N	17.9	N
	St Helens & Knowsley	29.1	N	33.7	H
	Wirral	20.2	N	25.4	N
Lancashire & Cumbria	East Lancashire	32.4	H	29.6	N
	South Lancashire	15.9	N	12.3	L
	North West Lancashire	24.6	N	23.8	N
	North Cumbria	18.3	N	21.4	N
	Morecambe Bay	21.3	N	22.7	N

II. Prevalence of risk patterns within NW Region

Proportion of Cigarette Smokers by Health Authority

North West Region	Health Authorities	Standardised Rate per 100: Mean (Males)	Significance indicator (Males)	Standardised Rate per 100: Mean (Females)	Significance indicator (Females)
Greater Manchester	Bury & Rochdale	35.5	N	37.3	H
	Manchester	32.4	N	43.8	H
	Salford & Trafford	26.1	N	32.2	N
	Stockport	29.0	N	19.1	L
	West Pennine	40.2	H	36.4	N
	Wigan & Bolton	34.8	N	29.8	N
Merseyside & Cheshire	Liverpool	29.6	N	37.7	H
	North Cheshire	22.8	L	19.9	N
	South Cheshire	27.5	N	26.2	N
	Sefton	33.2	N	30.7	N
	St Helens & Knowsley	30.3	N	32.9	N
	Wirral	25.3	N	28.9	N
Lancashire & Cumbria	East Lancashire	35.1	N	28.8	N
	South Lancashire	29.9	N	28.0	N
	North West Lancashire	30.2	N	28.8	N
	North Cumbria	26.7	N	28.9	N
	Morecambe Bay	29.3	N	26.8	N

Proportion Overweight (ie Body Mass Index : 25 - 30) by Health Authority

North West Region	Health Authorities	Standardised Rate per 100: Mean (Males)	Significance indicator (Males)	Standardised Rate per 100: Mean (Females)	Significance indicator (Females)
Greater Manchester	Bury & Rochdale	40.1	N	29.3	N
	Manchester	44.1	N	37.5	N
	Salford & Trafford	47.2	N	28.9	N
	Stockport	46.2	N	35.3	N
	West Pennine	50.9	N	30.2	N
	Wigan & Bolton	39.0	L	32.8	N
Merseyside & Cheshire	Liverpool	48.9	N	30.7	N
	North Cheshire	48.9	N	30.1	N
	South Cheshire	44.2	N	34.8	N
	Sefton	47.8	N	25.1	N
	St Helens & Knowsley	45.9	N	30.7	N
	Wirral	40.5	N	31.6	N
Lancashire & Cumbria	East Lancashire	40.9	N	32.1	N
	South Lancashire	48.5	N	32.2	N
	North West Lancashire	38.7	N	29.7	N
	North Cumbria	48.2	N	30.2	N
	Morecambe Bay	45.1	N	30.4	N

III. SMRs for CHD within Three Selected NW Health Authority Areas: Bury & Rochdale, St Helens & Knowsley and East Lancashire, 1997-1999

Standardised Mortality Ratio (SMR) is used to compare mortality rates in different population groupings, taking into account age and sex differences.

SMRs for England and Wales are always 100, therefore if an area has an SMR greater than 100, then the population of that area has a mortality rate greater than the average for England and Wales, after adjusting for differences in the structure of the population.

Three health authority areas have been randomly selected: Bury & Rochdale, St Helens and Knowsley and East Lancashire. Each of them is located within each of the three zonal units of NWPHO. SMR data clearly illustrates sharp differences between and within the three areas at HA, PCG/T and ward level⁹⁰. SMR data from eight randomly selected wards within each health authority area are provided.

Note: SMRs for larger population areas (HA, PCG/T) provide a much more accurate reflection of relative CHD mortality in relation to other similar sized areas of population. It is important to be cautious when reflecting on and comparing SMRs at ward level, which comprise very small populations, as any increase in CHD deaths at the local population level leads to a huge increase in the recorded SMR.

□ HA level SMR data

NW Health Authorities	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Bury & Rochdale	131	145	124
St Helens & Knowsley	134	192	126
East Lancashire	137	155	132

□ PCG/T level SMR data

PCG/T in Bury & Rochdale	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Bury North	111	174	129
Bury South	127	70	122
Heywood & Middleton	159	210	133
Rochdale	133	148	118

PCG/T in St Helens & Knowsley	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Central & South Knowsley	152	178	125
Kirkby	154	268	134
Newton & Haydock	149	168	123
St Helens North	81	169	111
St Helens South	136	216	142

⁹⁰ SMRs for CHD in selected HA areas (1997-1999) Small Area Database, North West Regional Office 2000

PCG/T in East Lancashire	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Blackburn with Darwen	172	166	138
Burnley	157	160	134
Hyndburn	124	180	133
Pendle	125	162	133
Ribble Valley	65	119	109
Rossendale	141	121	134

❑ **Selected Ward level SMR data**

Bury & Rochdale HA Wards	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Besses	209	45	143
East	124	310	127
Radcliffe Central	128	143	171
Castleton	192	261	136
Middleton Central	224	237	136
Middleton West	276	324	172
Norden & Bamford	82	69	91

St Helens & Knowsley HA Wards	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
Halewood East	118	116	94
Halewood South	173	283	122
Longview	207	362	169
St Michaels	134	485	173
Eccleston	47	158	103
Parr & Hardshaw	161	389	191
Rainhill	170	234	142
Windle	76	104	102

East Lancashire HA Wards	Male SMR (0-64)	Female SMR (0-64)	Total SMR (All Ages)
North Turton	90	0	73
Gawthorpe	191	429	130
Hapton	247	176	202
Clayton-Le-Moors	107	257	153
Peel	102	405	166
Ribblesdale	104	334	91
Greensclough	139	344	193
Stacksteads	149	254	110