WEST MIDLANDS KEY HEALTH DATA 2006/07

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PREFACE

This is the ninth edition in the Key Health Data for the West Midlands Series. The report is compiled by the Public Health and Epidemiology Department at the University of Birmingham. The report this year is a collaborative project between West Midlands Public Health Observatory, Health Protection Agency (West Midlands), West Midlands Cancer Intelligence Unit, South Birmingham Primary Care Trust, West Midlands Specialised Services Agency, National Drug Treatment Monitoring System, Primary Care and General Practice and the West Midlands Perinatal Institute.

Contemporary Public Health employs a wide definition of health. Key Health Data reflects this spectrum, we try not only to report measurable mortality and morbidity but also the social and economic impacts that affect a person's well being.

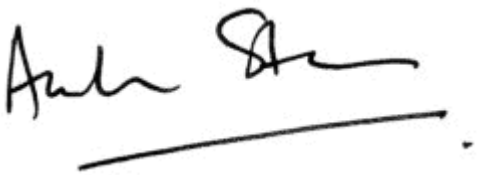
Our philosophy remains to signpost reliable health, health care, environmental and social information and highlight the variation across the West Midlands. Its purpose is not to determine the cause or to provide 'league tables' of ill-health but rather to promote the widest possible debate and to encourage active collaboration.

The content this year builds on previous Key Health Data reports. The CD-ROM enclosed includes past Key Health Data reports, associated data as well as extra material we were not able to include in the reports.

The report can also be downloaded from our website:

www.pcpoh.bham.ac.uk/publichealth/publications/key_health_data/index.html

We thank those who have contributed and helped with its production, and trust that is provides valuable information for those concerned with health and health care in the West Midlands. We welcome any comments you may have.



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ASH	Action on Smoking and Health
BBC	Birmingham and Black Country
BEACHeS	Birmingham Healthy Eating and Active Lifestyle for Children Study
BMI	Body Mass Index
BMJ	British Medical Journal
CHD	Coronary Heart Disease
COPD	Chronic Obstructive Pulmonary Disease
CVD	Coronary Vascular Disease
D(A)AT	Drug (& Alcohol) Action Team
DIP	Drug Intervention Programme
DSR	Direct Standardised Rate
EDT	Electronic Data Transfer
EISS	European Influenza Surveillance Scheme
EWGLI	England and Wales Working Group for Legionella Infections
GFR	General Fertility Rate
GHS	General Household Survey
GIS	Geographical Information Systems
GOR	Government Office region
GP	General Practitioner
HES	Hospital Episodes Statistics
HMRA	Housing Market Renewal Area
HPA	Health Protection Agency
HPU	Health Protection Unit
HSE	Health Survey for England
IC	Information Centre
ICD - 9 or 10	International Classification of Disease Version 9 or Version 10
IFS	Infant Feeding Survey
LA	Local Authority
LDPR	Local Delivery Plan Returns
MOSA	Medical Officers of Schools Association
NCHOD	National Centre for Health Outcomes Development
NCOD	National Childhood Obesity Database
NDTMS	National Drug Treatment Monitoring Service
NHS	National Health Service
NHSCR	National Health Service Central Register
NI	National Insurance
NICE	National Institute of Clinical Excellence
NIRS	National Insurance Recording System
NPEU	National Perinatal Epidemiology Unit
NSF	National Service Framework
NTA	National Treatment Agency
ONS	Office of National Statistics
OS	Ordnance Survey
OSLO	Ordnance Survey Liaison Officers
PbR	Payment by Results
PCT	Primary Care Trust
PGA	Pan Government Agreement
PSA	Prostate Specific Antigen
RSU	Regional Surveillance Unit
TFR	Total Fertility Rate
UKACR	United Kingdom of Cancer Registries

WHO	World Health Organisation
WMCIU	West Midlands Cancer Intelligence Unit
WMPHO	West Midlands Public Health Observatory
WMPI	West Midlands Perinatal Institute

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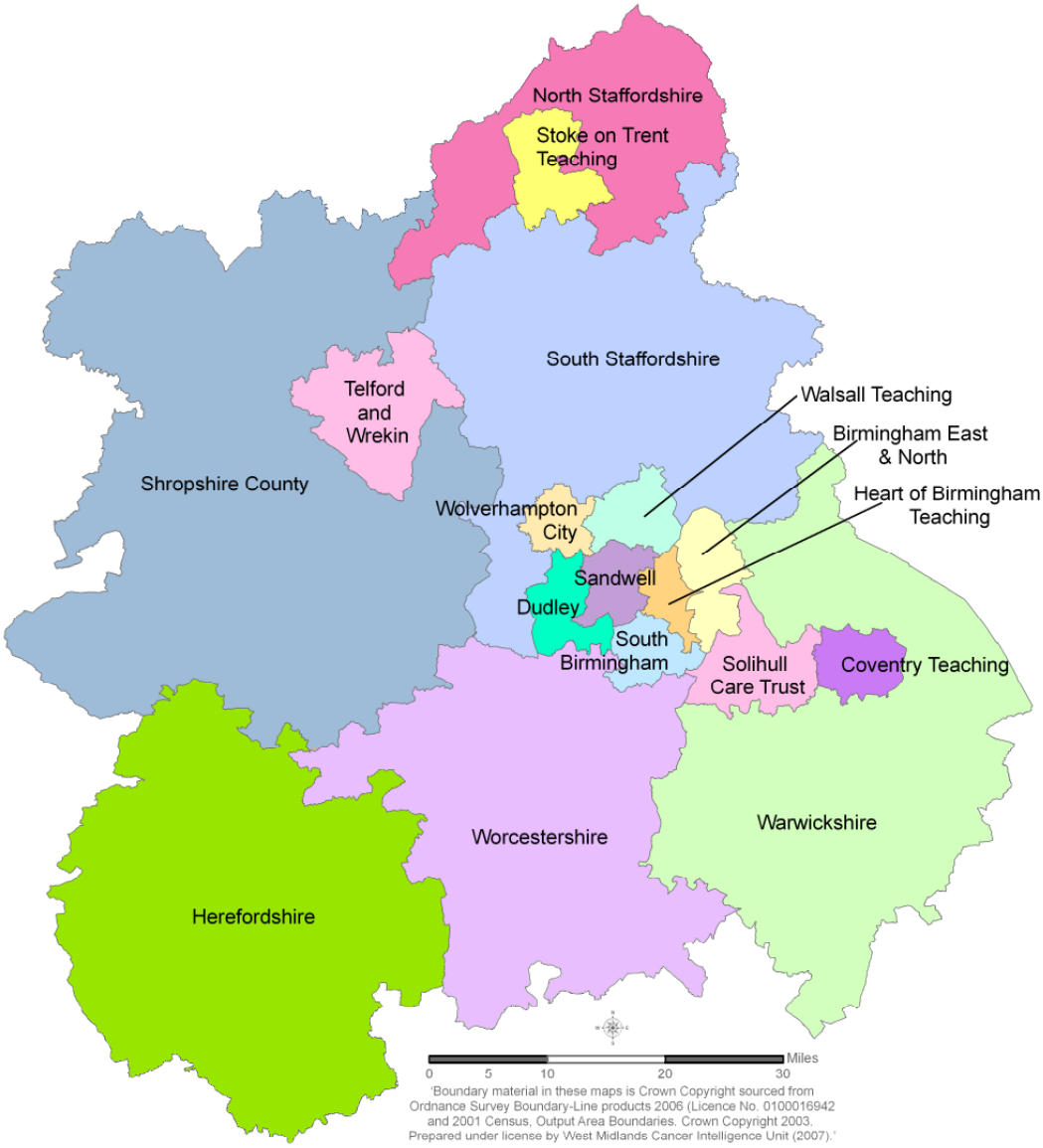
CHAPTER ONE: HEALTH GEOGRAPHY

1.1 Introduction

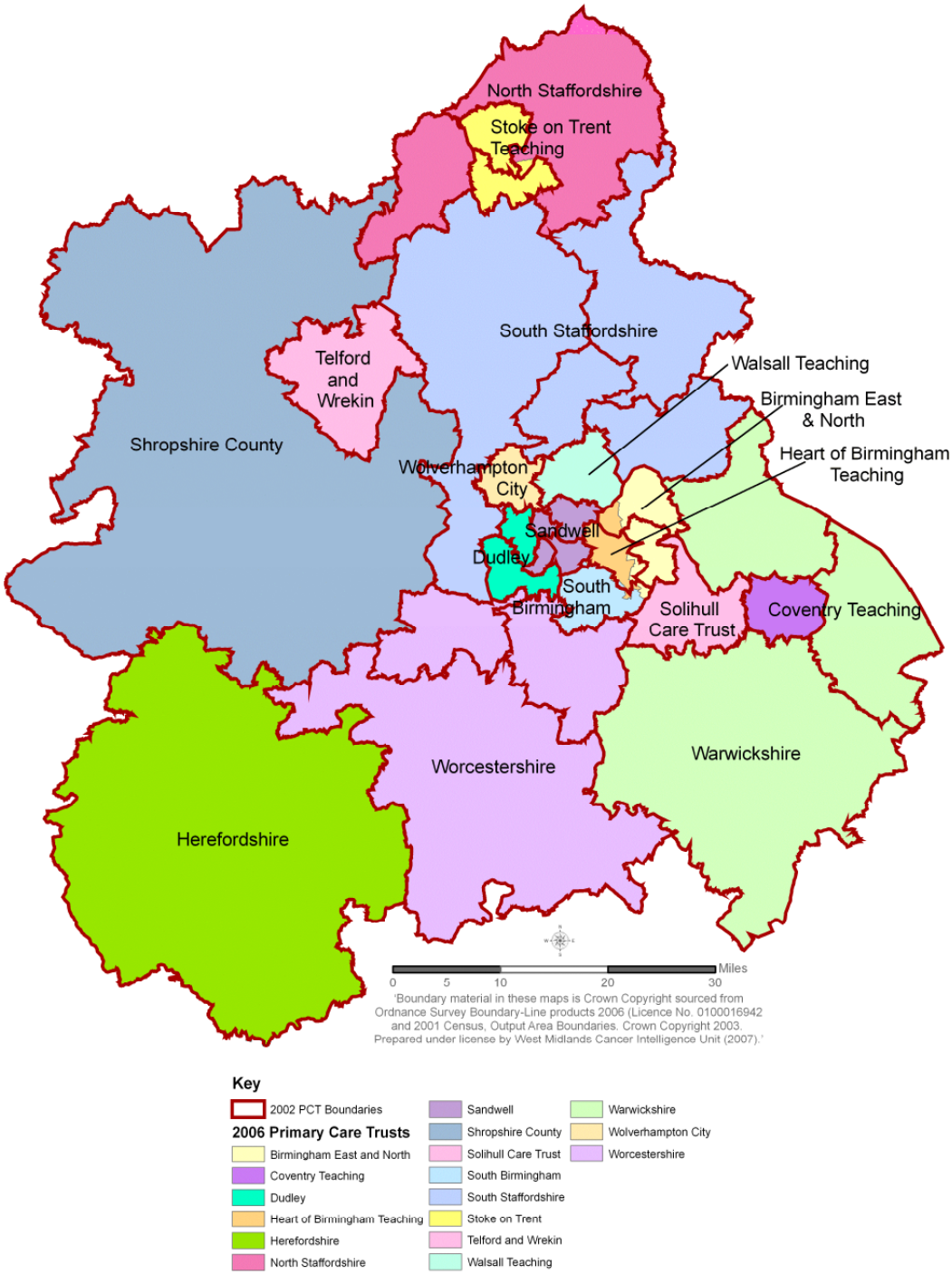
2006 has seen a period of consolidation in terms of health geographies. The changes made to Strategic Health Authority, Primary Care Trust and Ambulance Trust geography in 2006 and the resulting reorganisation of departments and people have broadly settled down. Annually adjusted population estimates for the new configuration of Primary Care Trusts were published by Office for National Statistics (ONS) as experimental statistics in March 2007 to facilitate the calculation of time series health statistics for 2002-2005 for the new organisation boundaries ahead of 2006 activity becoming available.

For completeness a map of Primary Care Boundaries 2006 (as provided by ONS Geography based on Ordnance Survey (OS) Boundary-Line product) and a comparison of 2002 and 2006 boundaries are shown at Map1.1 and 1.2. 2006 PCT boundaries are available free of charge from ONS geography to those licensed for OS Boundary-Line™ product.

Map 1.1: Primary Care Trust Boundaries 2006



Map 1.2: Comparison of 2006 & 2002 PCT boundaries.



1.2 Access to OS Data for NHS Organisations

The Ordnance Survey NHS Pilot agreement was launched by the Information Centre for Health and Social Care in November 2005 based on Tier 1-4 organisations (NHS Trusts, Primary Care Trusts, Strategic Health Authorities and Cancer Registries). The Ambulance Trusts (Tier 5 organisations) became eligible to join the pilot agreement in April 2006. The pilot agreement provides a suite of OS products 'free at point of use' to all NHS organisations not previously included in any other OS collective agreement – this excluded the Public Health Observatories as they were included in the earlier Pan Government Agreement (PGA).

The OS NHS pilot has been closely monitored by the Information Centre to ensure the best use was made of OS data and any issues arising are swiftly addressed. Monthly feedback meetings by OS have monitored uptake by organisations to ensure a valid cohort of organisations in each tier would be available to evaluate its success. By September 2006 67% of eligible organisations had applied to join the OS NHS Agreement and 41% were taking data.

At the end of August 2006 OS Liaison Officers (OSLOs) in the NHS were invited to respond to an electronic questionnaire to measure the success of the pilot against its Key Performance Indicators. The user feedback survey received an overall response rate of 83% where 85% of these organisations are satisfied or very satisfied with the pilot agreement. The 10% organisations that showed some dissatisfaction with the pilot, cited the time required to complete order forms, lack of training in GI tools and lack of 'out of area' data as their principle reasons for dissatisfaction. The use of OS map products varies greatly by tier but all users intend to make use of other products in the future. Almost 33% of users wish to have access to out-of-area data in the future. Organisations use a wide range of software to access the OS data; more than 70% organisations have access to GIS software. Lack of staff and training are cited as reasons why the organisations' GI requirements are not being met in the pilot. A range of options for taking forward the pilot were also investigated in the survey to assess user opinion.

The Chief Executives of those organisations identified as non-users of the pilot were invited to answer a much shorter 3 question survey. Many non-users were unaware of the pilot; others had other arrangements for access to map data.

The Key Performance Indicators have demonstrated a strong case for continuation of the OS NHS agreement supported by a central funding stream. The Information Centre (IC) has agreed an extension of the existing pilot to September 2007 whilst exploring various options for funding. The Ambulance Trusts have found themselves at greatest risk as a result of the lack of a replacement deal as they use the most detailed and expensive digital map products as part of their daily operation. The IC is therefore working closely with the Ambulance Trusts to take forward a collaborative competitive procurement to ensure continuity of provision. The IC is hopeful that a future

agreement can be secured that will include wider NHS inclusion on a charge back basis so enabling the whole NHS to access a range of digital mapping products in a cost effective way.

NHS organisations who have access to OS datasets under the Pilot agreement may continue to use them until 30th September 2007 when the results of the new competitive procurement process should become known.

All users of OS data licensed through the Pilot should be aware that any maps published before 30th September 2007 may continue to be used beyond the end of the agreement in their published state, as would happen in any other published report. However any use of OS data in an interactive, ad hoc manner would need to be fully licensed with OS at the point in time when they are accessed.

Both the Information Centre and Ordnance Survey websites have been developed to provide access to information, resources and case studies in the use of OS data under the pilot agreement at:

http://www.ic.nhs.uk/statistics-and-data-collections/population-and-geography/nhs-mapping-pilot

and

http://www.ordnancesurvey.co.uk/oswebsite/business/sectors/health/NHSagreement/NHSagreement.html

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CHAPTER TWO: A GENERATION OF CHANGE

THE POPULATION OF THE WEST MIDLANDS FROM 1981 TO 2006

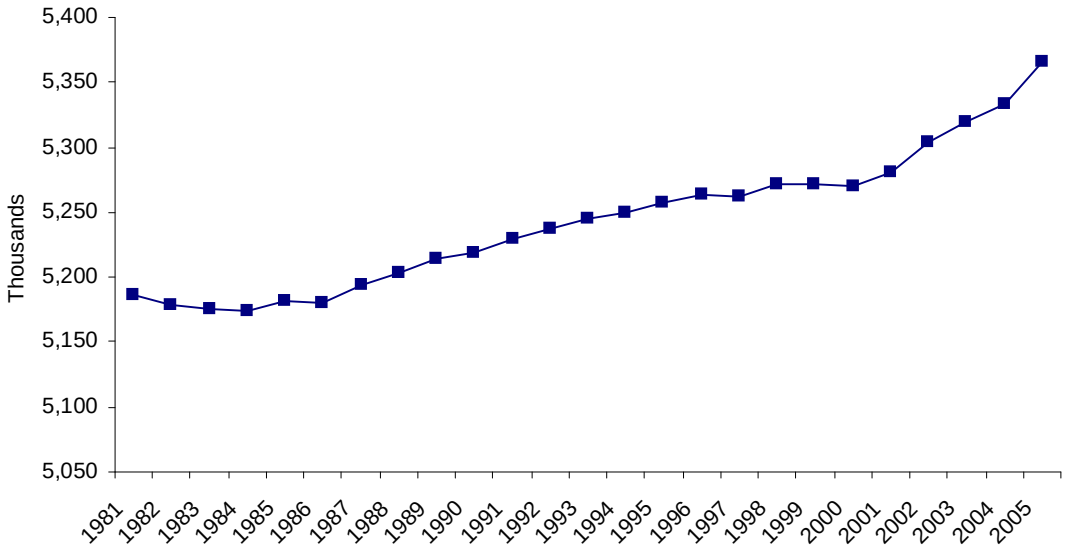
2.1 Introduction

This chapter looks back over a generation (25 years) of change in the population of the West Midlands. In particular, the chapter looks at changes in the size of the population, the age profile, and migration both internal and international. This chapter specifically avoids using population data drawn from the 2001 Census as it is widely regard as being 'out of date' instead it reports on data sources that are at least annually updated. Most of the data presented here is at the regional level, data for local authorities can be found on the website and CD-ROM.

2.2 Population Growth

The population of the West Midlands has grown by 3.3% from 5.18 million to 5.37 million. The rate of growth is half that of England, its growth was 7.2%. Initially in the early 1980s the population was stable, but since 1986 it has grown steadily (0.1% per annum) until early in the new century when growth had increased rapidly growing at an average of 0.3% per annum (Figure 2.1). In the four years since the 2001 Census, it has been estimated that the population of the West Midlands has risen by over 84,000, which is 30,000 more than in the preceding ten years between 1991 and 2001 just illustrating how rapidly our population is changing.

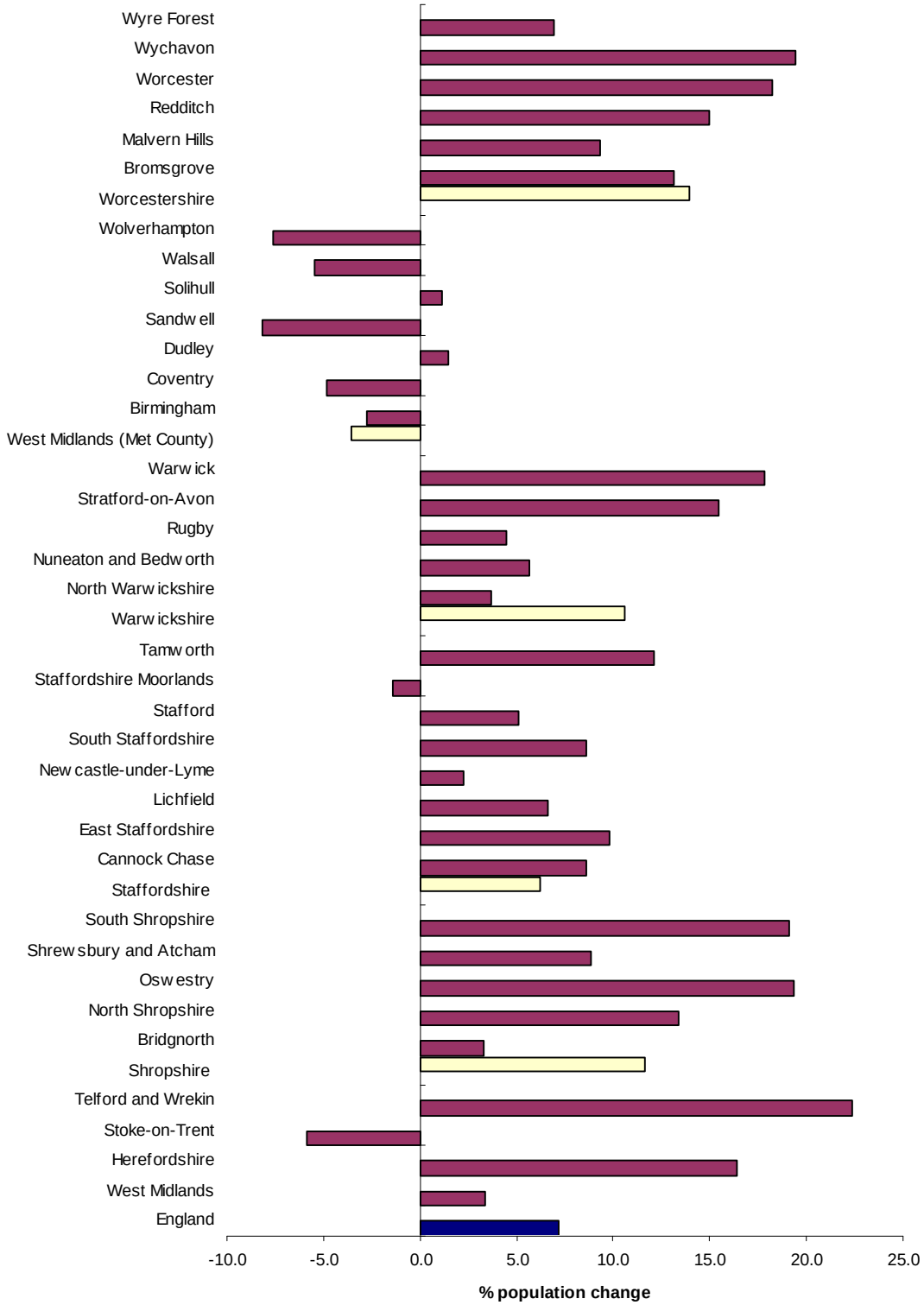
Figure 2.1: The size of the West Midlands population, 1981 to 2005



Source: ONS Mid-year estimates

Across the West Midlands there are substantial differences in the rate and direction of change by local authority. Over the 25 years, the urban areas have seen a decrease in their populations, whilst the rural areas have grown rapidly. (Figure 2.2)

Figure 2.2: The percentage change in total population since 1981



Source: ONS Mid-year estimates

Population growth is not stable. By breaking the period down into five-year periods it is possible to identify those areas that have been consistently growing and those that are now either in decline or now growing once more (Table 2.1). Those, which have reversed declining populations, are mainly found in the West Midlands Met County.

Table 2.1: Percentage change in Population in five-year periods

Area	1981 to 1985	1986 to 1990	1991 to 1995	1996 to 2000	2001 to 2005
England	0.5	1.1	1.1	1.5	1.9
West Midlands	-0.1	0.7	0.5	0.1	1.6
Herefordshire	2.4	3.8	3.3	4.0	2.2
Stoke-on-Trent	-1.1	0.4	0.0	-2.9	-0.9
Telford and Wrekin	4.1	6.2	3.3	6.1	1.9
Shropshire	2.1	2.0	2.1	2.0	2.0
Bridgnorth	3.3	-0.2	1.7	0.6	-0.6
North Shropshire	-1.4	3.4	2.0	3.9	3.2
Oswestry	0.0	6.8	2.6	4.3	4.8
Shrewsbury and Atcham	3.6	0.0	2.2	0.3	0.4
South Shropshire	3.9	4.0	1.8	2.5	4.5
Staffordshire	0.4	2.2	0.7	1.1	1.2
Cannock Chase	-0.8	4.7	1.0	1.6	1.1
East Staffordshire	-2.6	3.5	1.8	3.1	2.8
Lichfield	1.2	1.5	-0.3	0.8	2.4
Newcastle-under-Lyme	-1.3	1.2	0.7	1.1	1.1
South Staffordshire	4.5	2.5	0.5	0.9	-0.6
Stafford	0.1	0.7	1.5	-0.9	2.3
Staffordshire Moorlands	-0.2	0.4	-1.8	0.5	0.0
Tamworth	2.2	4.7	2.2	2.4	-0.5
Warwickshire	0.7	0.7	1.4	1.3	5.2
North Warwickshire	0.5	1.2	0.5	1.1	0.8
Nuneaton and Bedworth	-0.8	3.3	0.8	0.4	1.2
Rugby	-2.6	0.7	0.8	0.9	4.5
Stratford-on-Avon	3.4	-0.5	2.7	1.9	6.2
Warwick	2.3	-1.1	1.6	1.9	10.1
West Midlands (Met)	-1.3	-0.8	-0.6	-1.3	0.9
Birmingham	-1.3	-1.0	-0.5	-1.6	1.7
Coventry	-2.0	-1.9	-0.3	-1.1	0.5
Dudley	0.0	2.0	0.0	-0.6	0.2
Sandwell	-2.3	-2.4	-0.7	-1.3	0.6
Solihull	1.2	-0.1	-0.4	-0.6	0.6
Walsall	-2.3	0.4	-1.1	-1.1	0.1
Wolverhampton	-1.9	-1.5	-1.5	-2.4	0.7
Worcestershire	2.4	3.2	2.7	2.0	2.4
Bromsgrove	2.7	0.6	2.9	1.1	3.9
Malvern Hills	0.1	1.7	2.1	1.1	3.9
Redditch	7.8	5.2	-0.6	1.0	1.0
Worcester	0.1	5.5	6.3	3.5	1.0
Wychavon	2.5	3.7	3.1	4.4	3.3
Wyre Forest	1.3	2.4	2.1	0.0	1.6

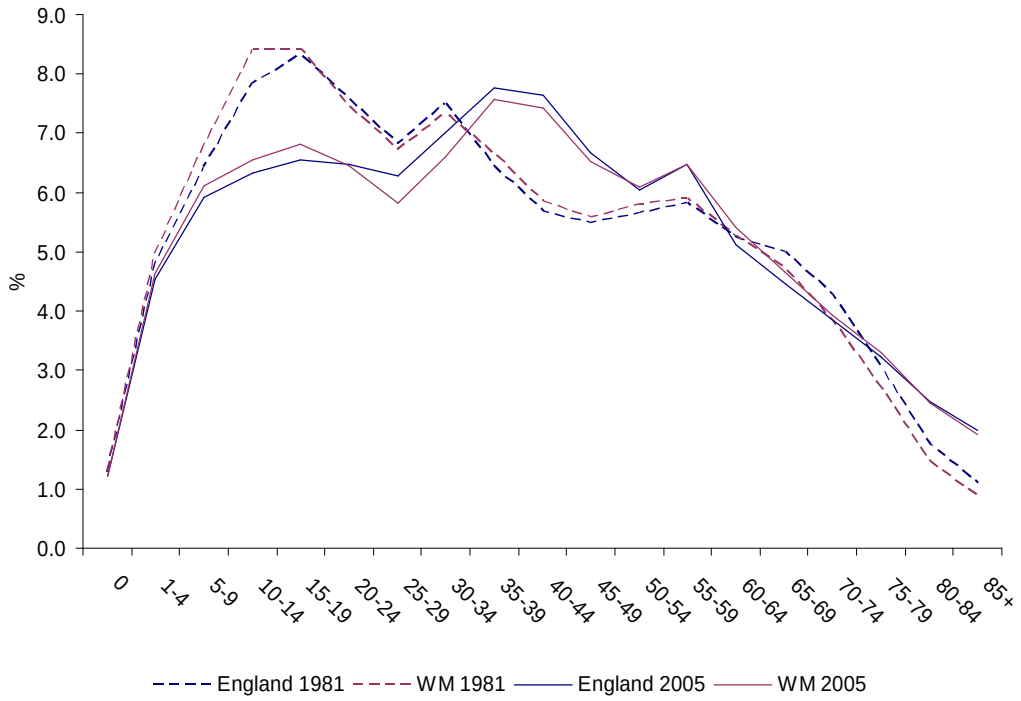
Red – Decreasing population, Orange – Stable population, Green – Population growth

Source: ONS Mid-year estimates

2.3 Changes in the Age profile

Over the 25 years there have been two significant changes in the age profile (Figure 2.3). There has been a decrease in the proportion of the population aged under 18. The peak seen in 1981 for both England and West Midlands has shifted on by 25 years into the 35-50 age band. The proportion of the population aged over 80 years has nearly doubled in 25 years, from 2.3% to 4.4% in the West Midlands.

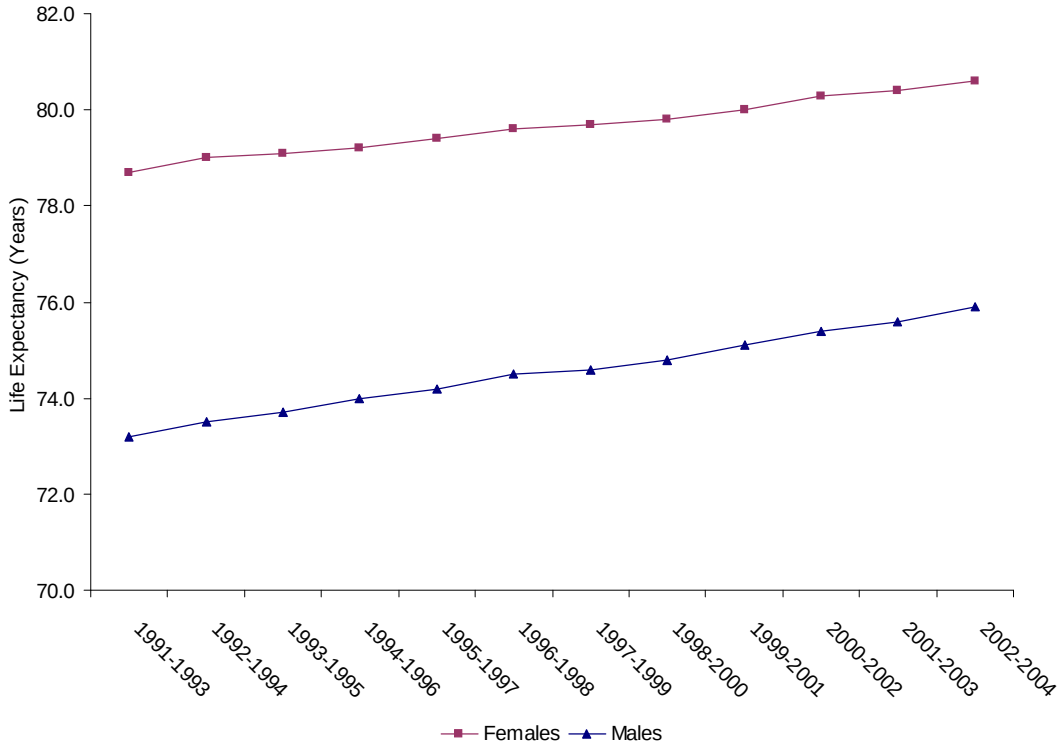
Figure 2.3: Change in age profile, 1981 to 2005



Source: ONS Mid-year estimates

The increase in the over 80 year olds has been the result of a consistent and continuing rise in life expectancy for both males and females (Figure 2.4). Since 1981 the age to which a man could expect to live has increased from 73.2 years to 75.9 years, and for a woman it has gone up from 78.7 years to 79.9 years.

Figure 2.4: Life expectancy for males and females in the West Midlands, 1991-1993 to 2002 to 2004

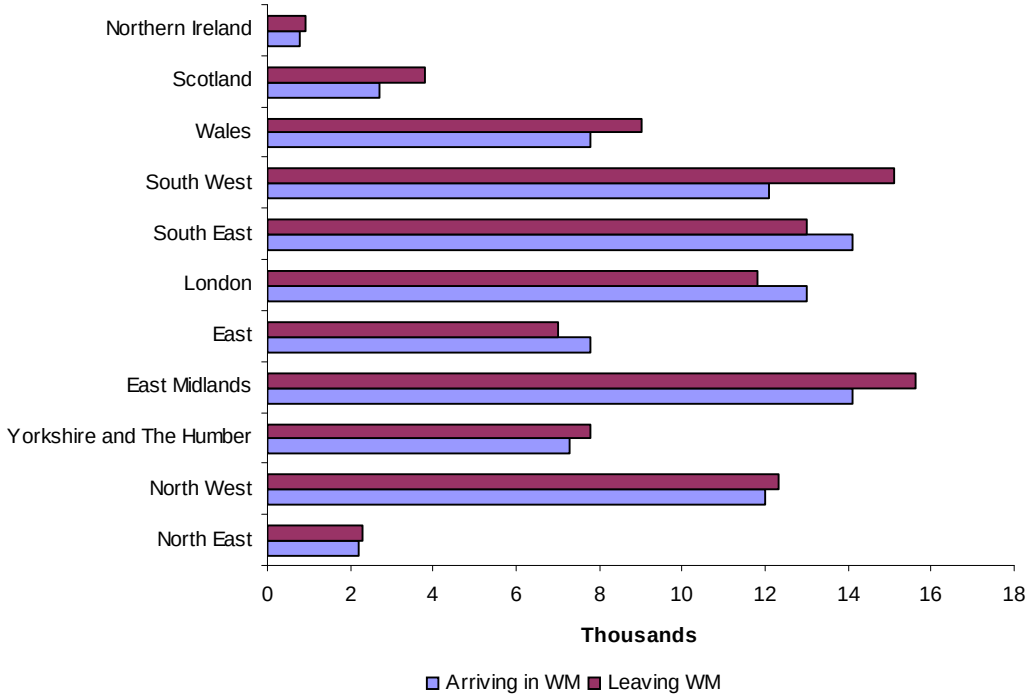


Source: NCHOD

2.4 Migration

Another key aspect of population dynamics is migration, both internal and international. The flow of population in and out of an area will depend on how attractive it is in terms of the economic and social advantage it offers. Data is available nationally using the changes in GP registrations to examine inflows and outflows. In 2005, 98,600 people left the West Midlands for other places in the UK, most went to the East Midlands or the South West and 94,000 moved in especially from London and the South East (Figure 2.5). The West Midlands has for the last 15 years consistently seen more people moving out than into the area (Table 2.2).

Figure 2.5: Destination and origin of those UK residents who moved in or out of the West Midlands, 2005



Source: ONS/NHSCR

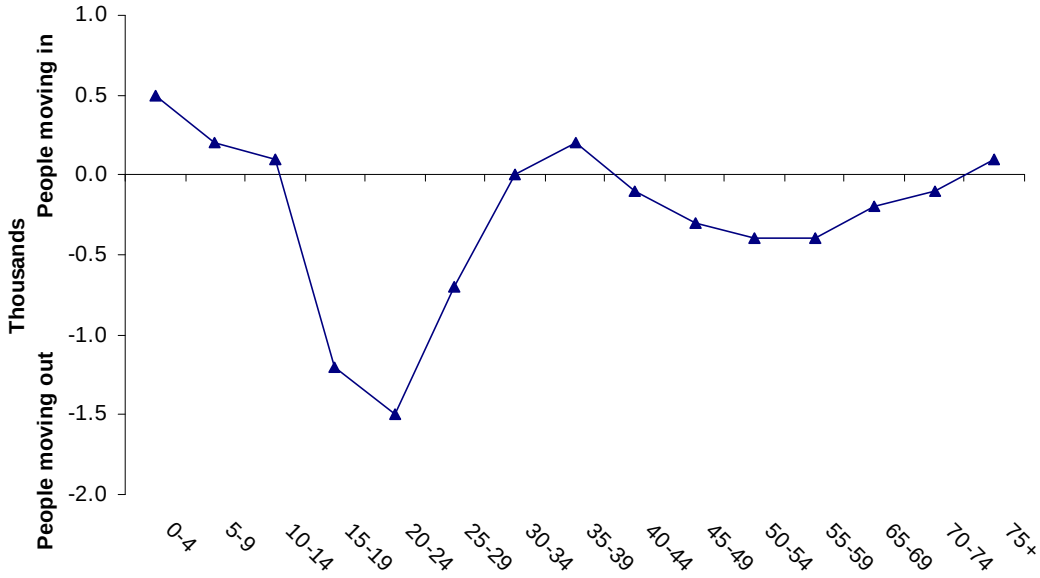
Table 2.2: Numbers of people moving in or out of the West Midlands,1991-2005, Thousands

	1991	1996	2000	2001	2002	2005
Inflow	83	91	94	95	99	97
Outflow	88	101	101	102	103	94
Difference	5	10	7	7	4	3

Source: ONS/NHSCR

Looking at migration by age the greatest movement is of those aged 15-29 out of the region.

Figure 2.6: Movement of people in and out of West Midlands by age, 2005



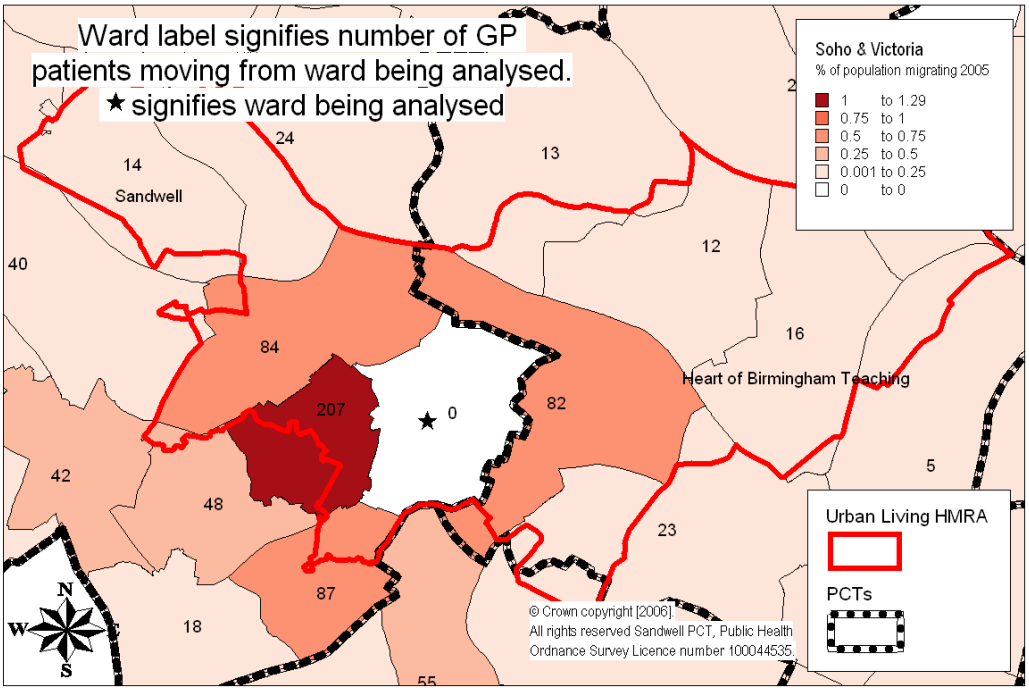
2.5 Informing Housing Market intelligence using NHS Patient Migration Data

Using the same GP registration database alluded to in the previous section, migration at a local scale can also be examined. The Urban Living Housing Market Renewal Area is an ambitious 15-year regeneration programme, which aims to improve neighbourhoods in east Sandwell and west Birmingham, where problems of low-demand housing are most acute [(a)] Sandwell PCT are helping Urban Living address a health and housing agenda, and as part of this have used the GP registration database to examine inter-ward movement affecting the Urban Living area.

Selecting thirteen key wards in and around the Urban Living area, movement of patients in 2005 was examined (wards affecting the Urban Living area can be seen in Figure 2.9). Figure 2.7 looks at movement from the Sandwell ward of Soho and Victoria. The predominant migration is to the west, to the ward of St Pauls, also in the Urban Living area. The numbers on the map indicate the actual number of patients moving in that year, with the wards shaded according to the percentage of the population of the ward being analysed who moved. It can be seen that there is a sharp reduction in numbers over a small distance from this ward, suggesting short-distance migration is popular. This is encouraging for a housing market renewal programme as migrants are tending to move locally, thus helping to stabilise the net out migration seen in Sandwell and Birmingham since 1981 (see Table 2.1) and indeed contribute to the period of small population increase seen in the most recent period (2001-2005, Table 2.1).

(a) http://www.urbanliving.org.uk/

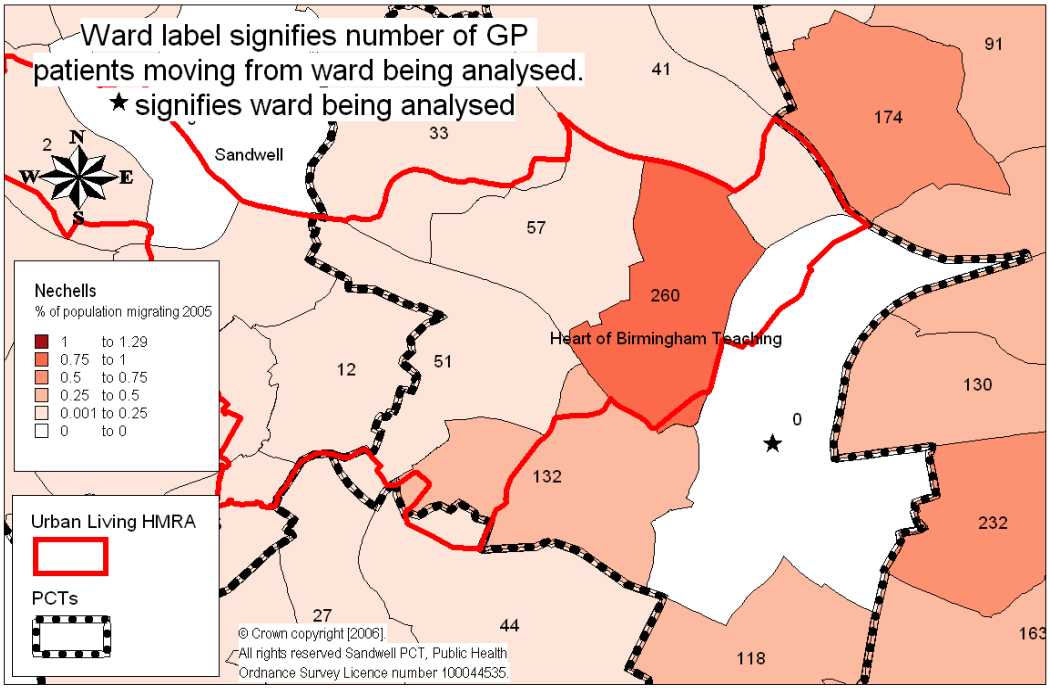
Map 2.1: Patient migration from the Soho & Victoria ward



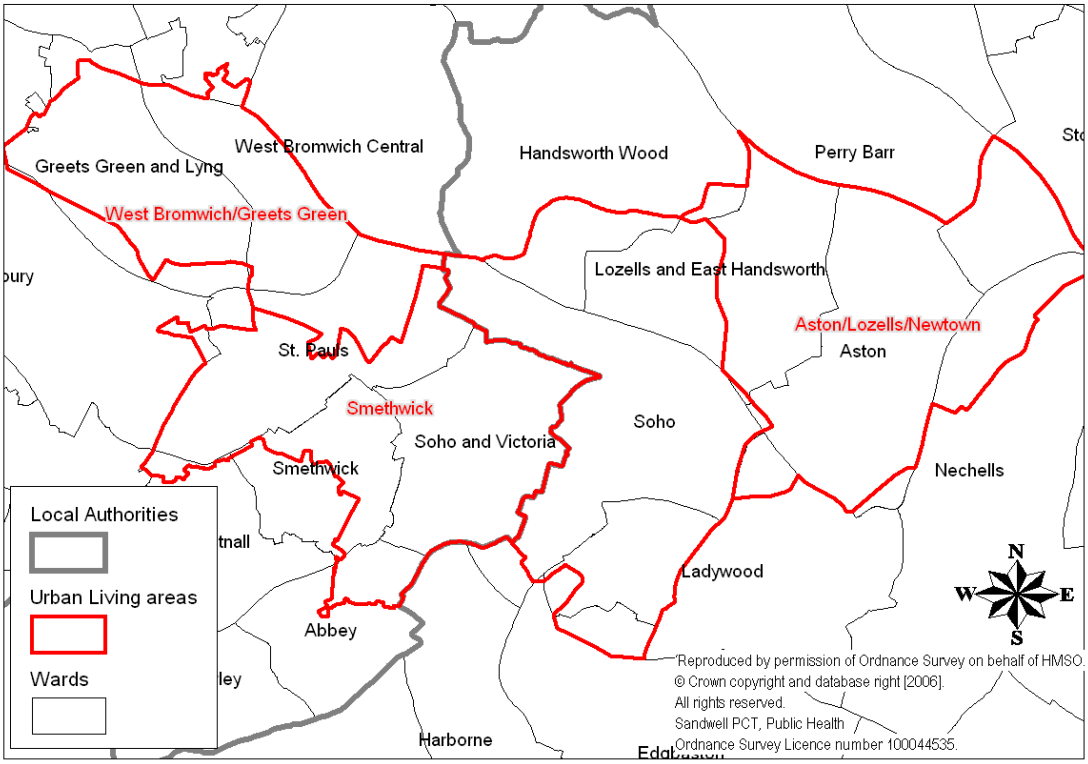
In terms of the Urban Living attracting residents from outside its area, Map 2.2. Shows the movement of patients from the Nechells ward of Birmingham. The predominant movement is to the east, away from the Urban Living area.

Encouragingly there is a lot of movement into the Aston ward, but the remainder of Urban Living remains unattractive in this year.

Map 2.2: Patient migration from the Nechells ward



Map 2.3: Wards affecting the Urban Living HMRA



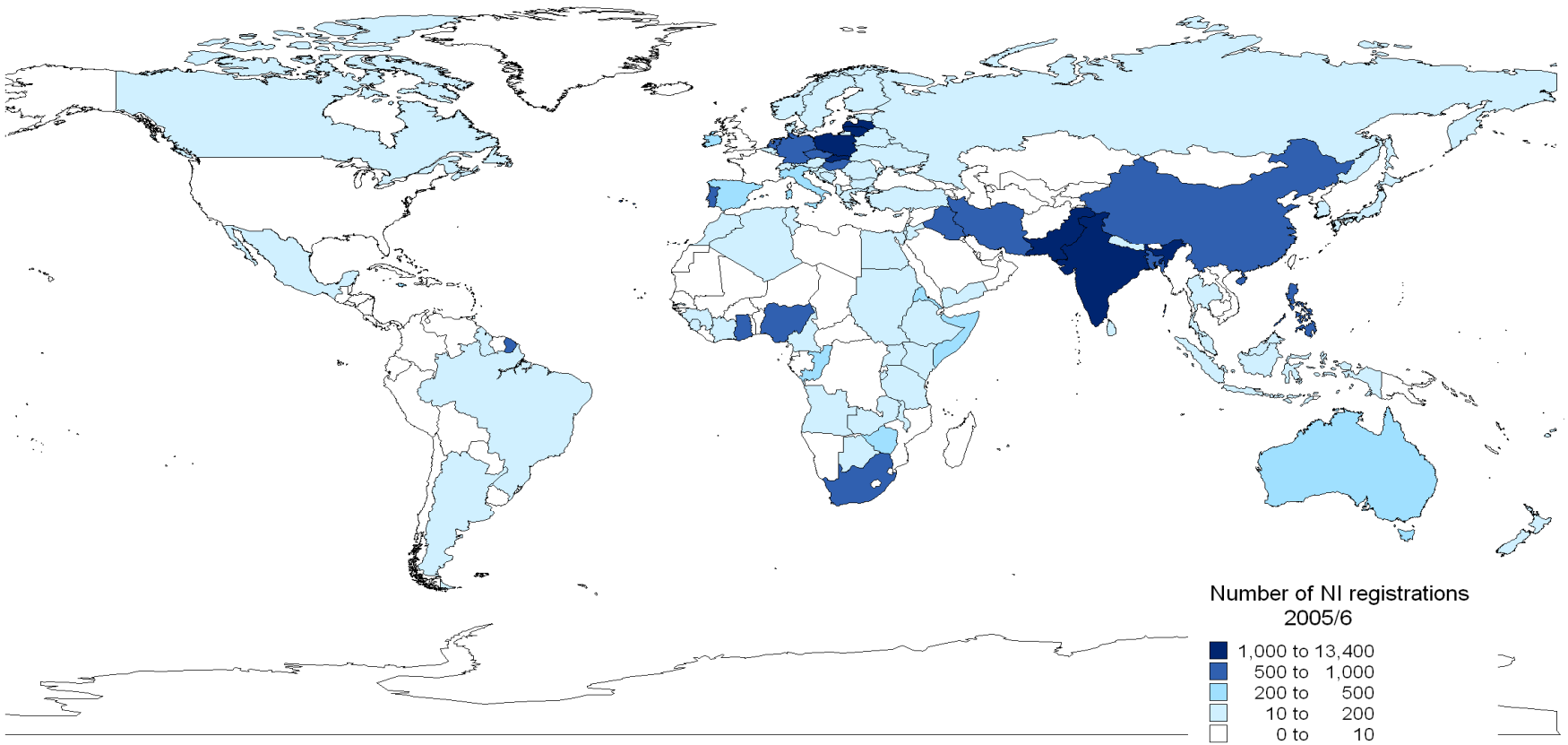
A more detailed examination of inter-ward movement using NHS patient migration can be found in the Sandwell PCT report on Urban Living, "Informing housing market intelligence using NHS patient migration data" (b) In producing their mid-year population and migration estimates, the Office for National Statistics have recognised the value and importance of GP registrations as a source of up to date demographic data. It is not without its problems; specifically the issue of list inflation (there being to many patients registered), patients lists systematically undercounting certain groups (such as young males) and the cumbersome way the data has to be extracted. However it still remains a valuable, if underused, resource for public health intelligence.

2.6 International Migration

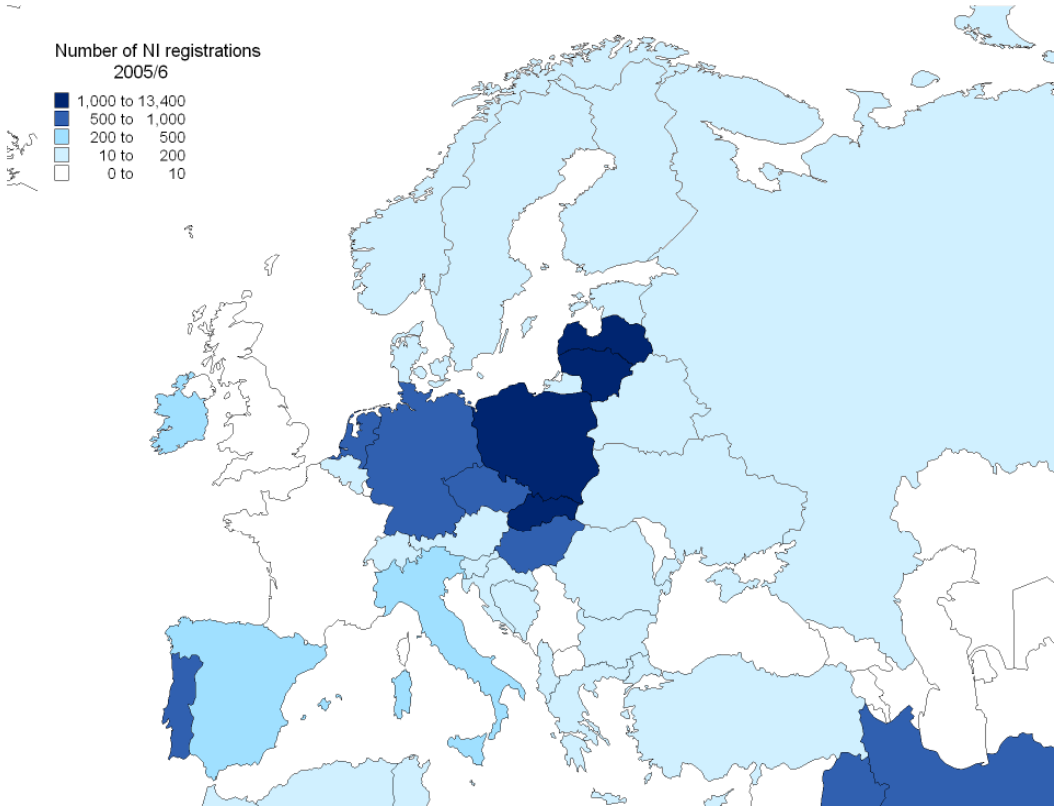
There are gaps in our knowledge, in particular regarding ethnicity and country of birth. People are rarely asked where they were born and if it is overseas how long have they been in the UK or what their ethnicity is. These questions are asked at GP surgeries but it is predominantly for new registrants and recording is patchy. Country of birth is recorded for those who come to this country to work as part of our National Insurance scheme (NI). In 2005/6, there were 41,770 new registrations most of whom are from Europe (60.6%, 24,530), and Asia (25.6%, 10,410).

(b) http://www.researchsandwell.org.uk/research/downloads/HMRA%20migration%20March%2007.pdf

Map 2.4: NI registrations by country of birth, 2005/6



Map 2.5: NI registrations by country of birth in Europe, 2005/6



Source: National Insurance Recording System (NIRS)

CHAPTER THREE: TREND DATA FOR SELECTED PCT PROFILE INDICATORS

3.1 Introduction

This chapter builds on the work of the previous two years KHD chapters, where trend data were provided for key indicators for all Primary Care Trusts (PCTs) across the region based on the 2002 configuration (WM KHD 2004/5) and all lower tier Local Authorities (LAs) across the region (West Midlands KHD 2005/06). This year a selection of the indicators is presented by the new 2006 reconfigured Primary Care Trusts.

The West Midlands Public Health Observatory is updating the Local Profiles which will provide key indicators of demography, mortality and morbidity to reflect the new configuration. These data can be accessed at http://www.wmpho.org.uk/profiles/?id=pct. It is intended that this section will be added to throughout the year to provide a comprehensive library of indicators at both a PCT and LA geographical level.

In order to highlight health inequalities across the region, this chapter presents trend data for those PCTs with Directly Standardised Rates (DSRs) which fall into approximately the highest and lowest 20 per cent of all West Midlands PCTs in the baseline year of 1995 i.e. the top 3 and bottom 3 PCTs for that indicator in 1995. The CD-ROM enclosed with this publication contains 1995-2005 trend data for all PCTs across the West Midlands Region.

All the charts except for All Causes show directly standardised mortality rates (DSRs) for a specific disease. Deaths were extracted from the ONS annual death extracts from 1995 to 2005 using the year of death registration and standardised to the European Standard Population. PCT codes were allocated using the 'gridallFeb2007 NHS Organisation Code' table supplied by the Organisation Codes Service division of the NHS Information Authority. ONS Mid-year estimates were downloaded from ONS current dataset. http://www.statistics.gov.uk/statbase/Product.asp?vlnk=601&More=N Unfortunately these were only available from and including 2002. For the years 1995 to 2001 PCT populations were derived from the UKACR (United Kingdom Association of Cancer Registries) Populations for the appropriate year. However, the UKACR Populations do not reflect the ward changes that occurred within Birmingham and this means that the population trends produced from the combination of these two sources for the three Birmingham PCTs is not smooth and any comparison between rates pre- and post 2001 should be interpreted with caution.

From January 2001 following recommendation from the World Health Organisation (WHO) mortality data cause of death has been coded in accordance with the Tenth Revision of the International Classification of Diseases (ICD-10). This means that for trend analysis, the number of deaths coded to the equivalent ICD-9 code is multiplied by the comparability ratio calculated using the ONS methodology. This produces an 'expected' number

of deaths which would have been coded to that specific cause under ICD-10. Further information on comparability ratios can be found at

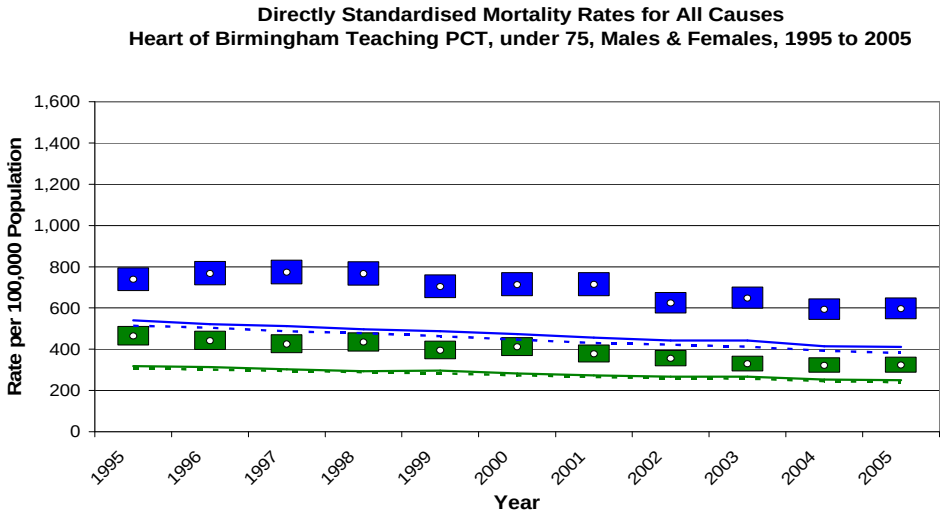
http://www.statistics.gov.uk/about/classifications/icd10/comparability_ratios.asp

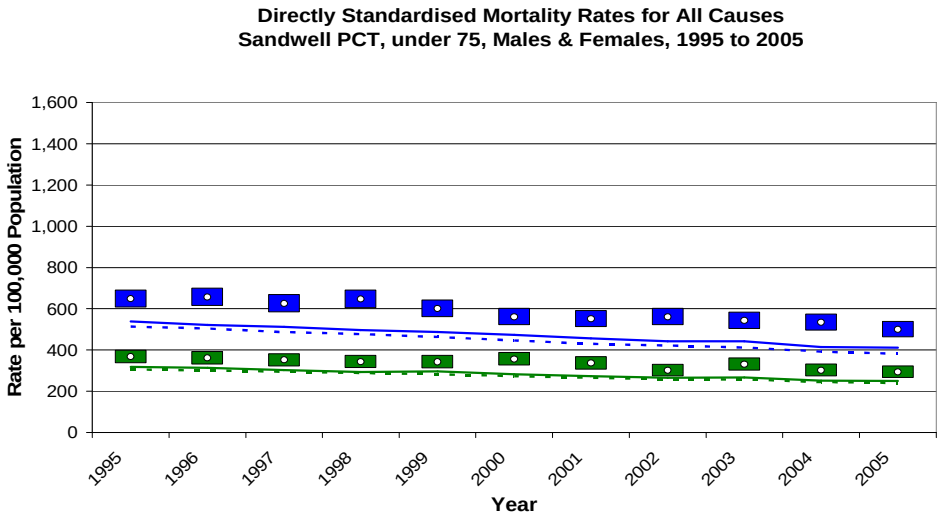
Figure Legend

o	Directly Standardised Rate or crude rate (males, females or all persons)
	Males (95% Confidence Interval)
	Females (95% Confidence Interval)
	All persons (95% Confidence Interval)
	West Midlands Male
	West Midlands Female
	West Midlands All persons
	England and Wales Male
	England and Wales Female
	England and Wales All persons

3.2 Mortality from All Causes Aged Under 75

Figure 3.2.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





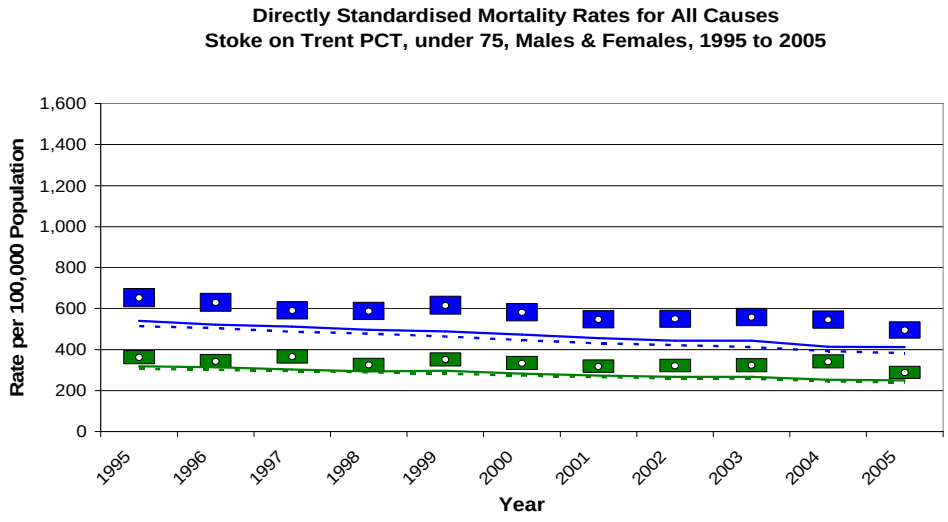
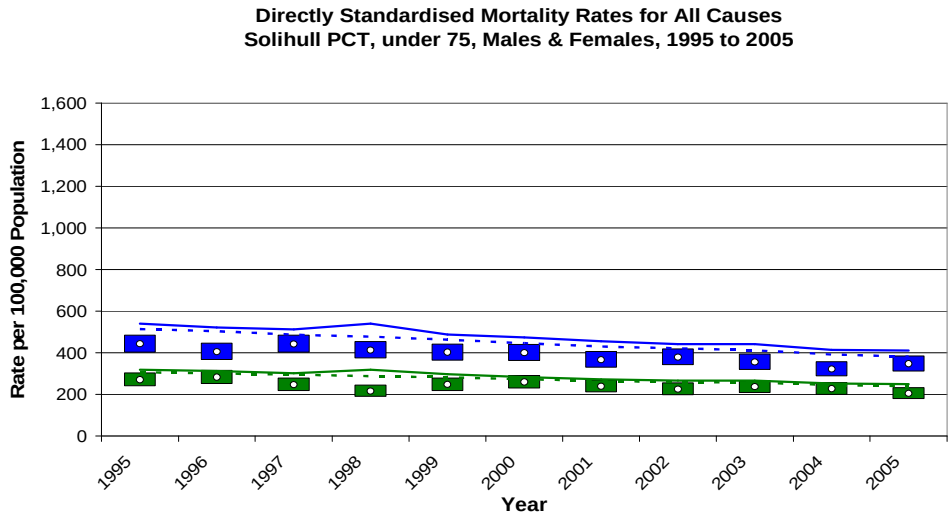
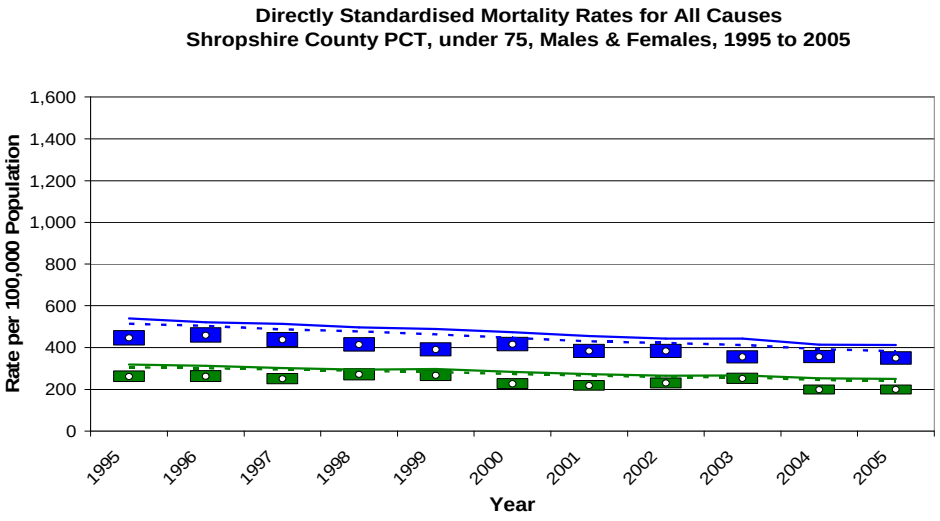
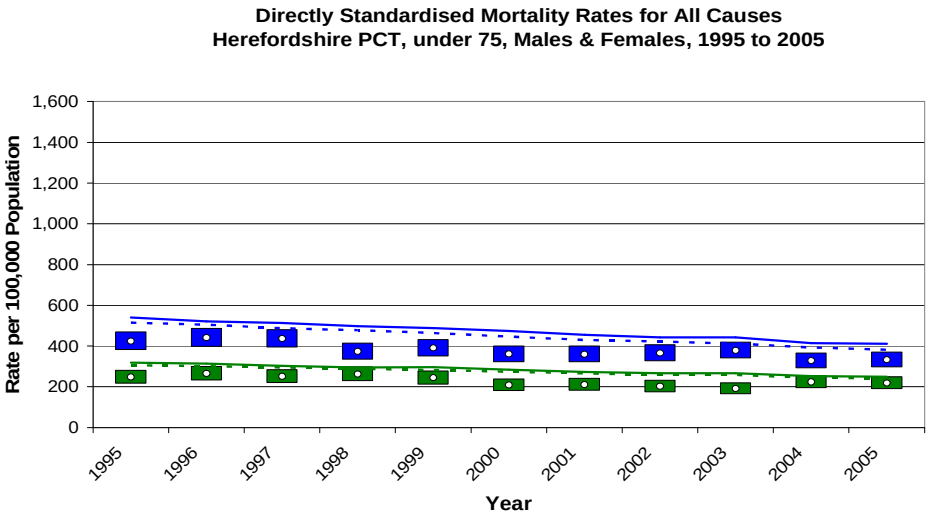


Figure 3.2.2: PCTs with DSRs that fall into the lowest 10 percent of all West Midlands PCTs (1995 baseline)

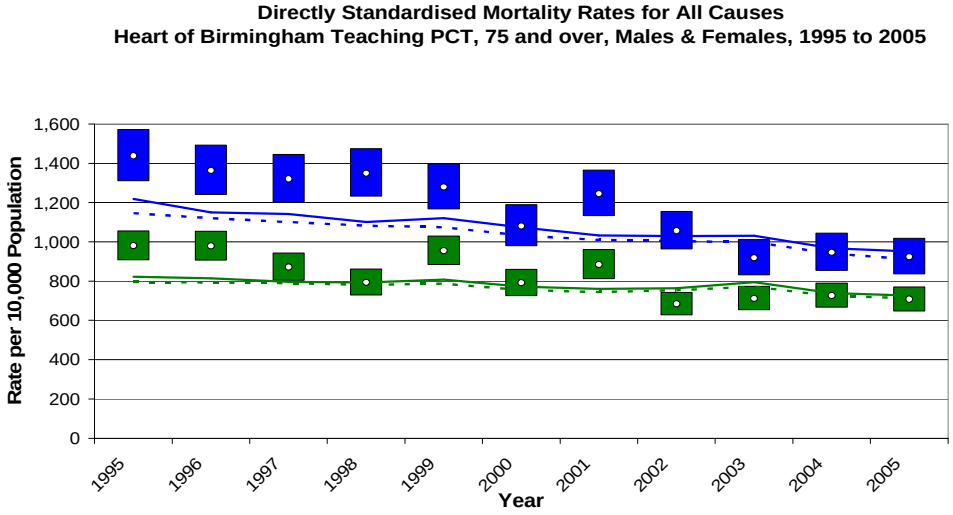


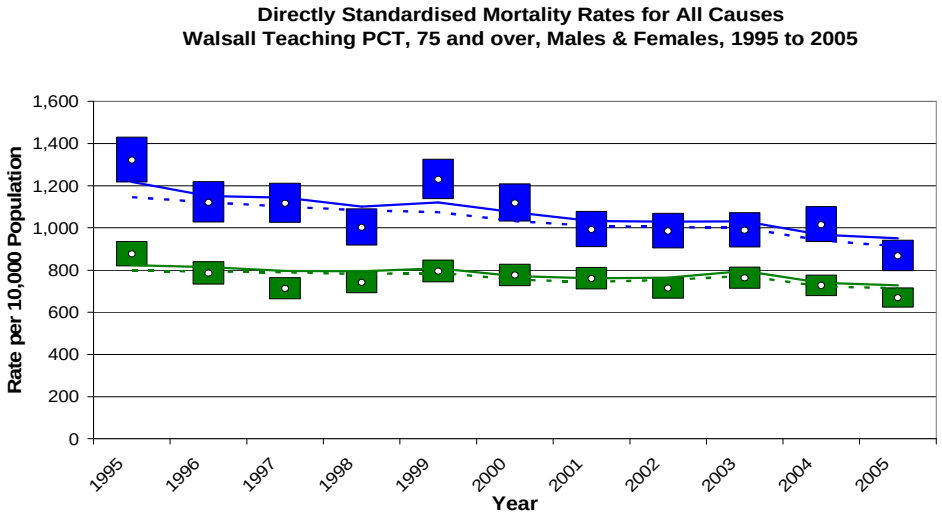




3.3 Mortality from All Causes Aged 75 and Over

Figure 3.3.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





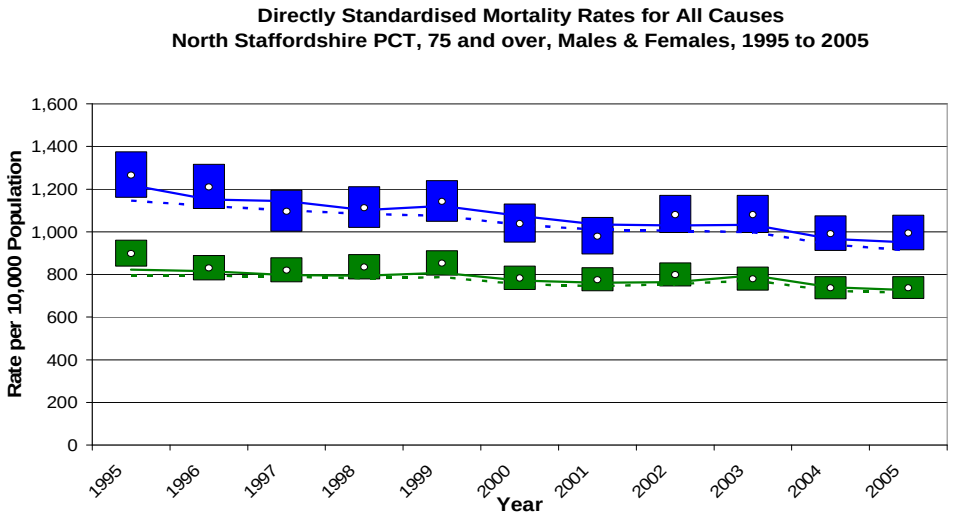
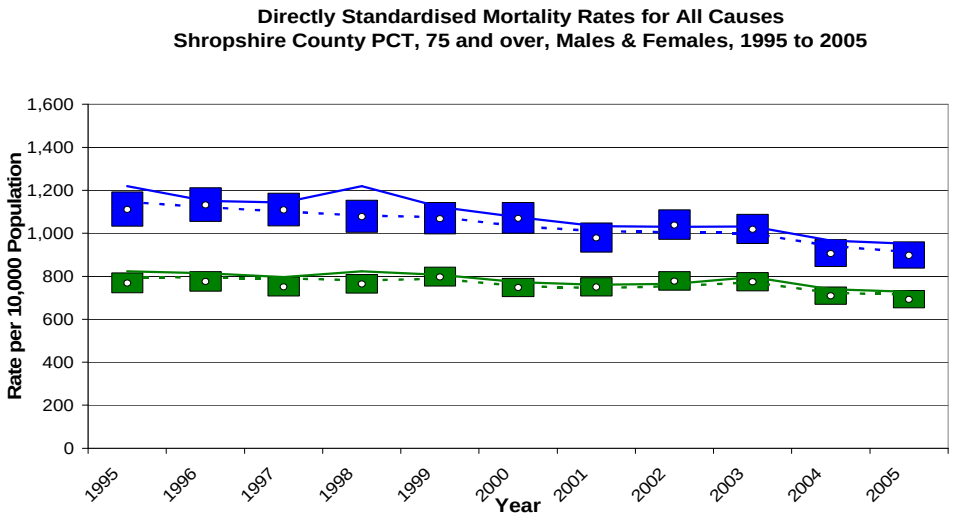
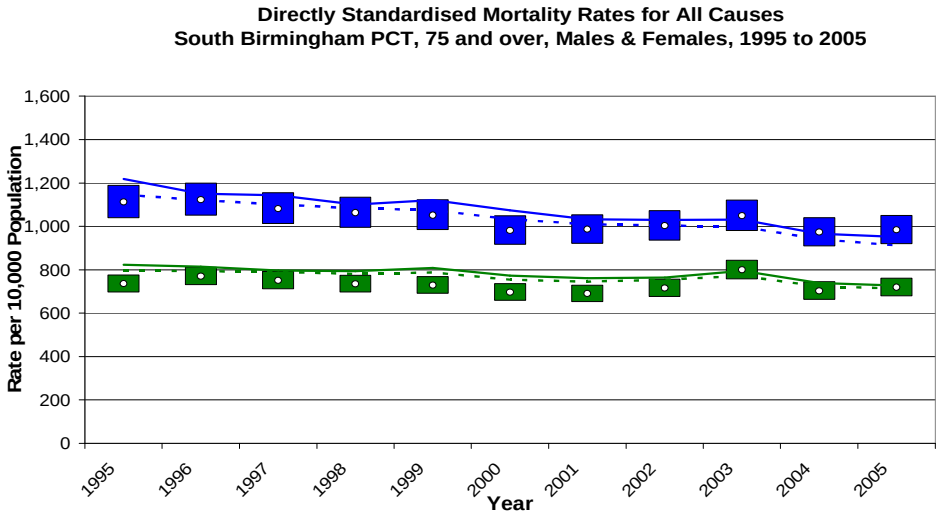
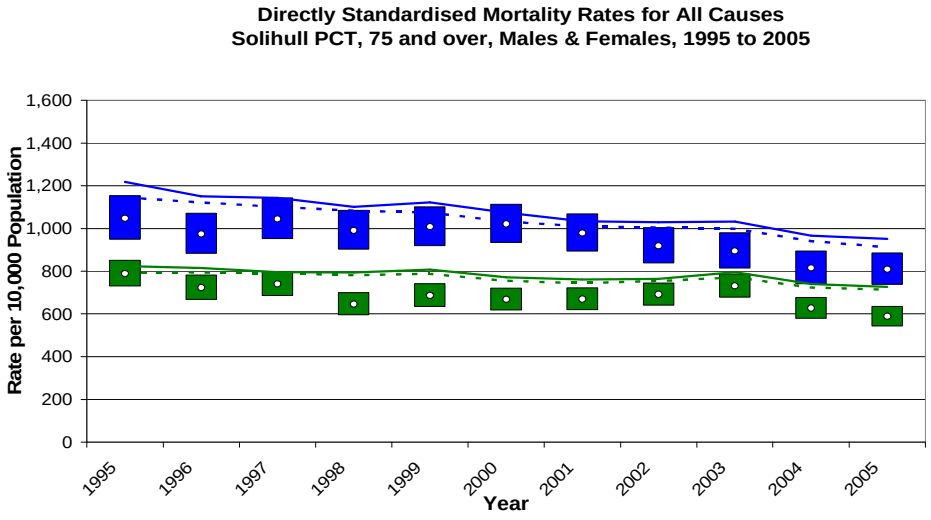


Figure 3.3.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

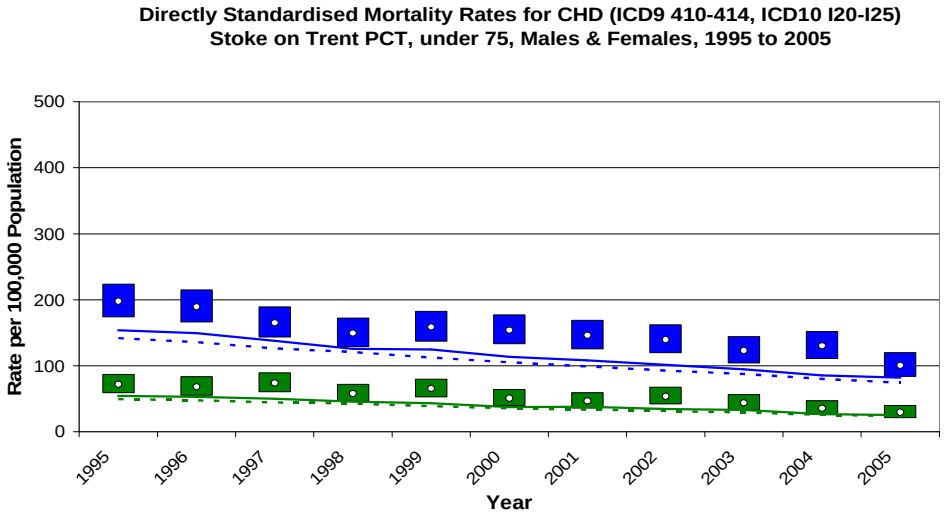


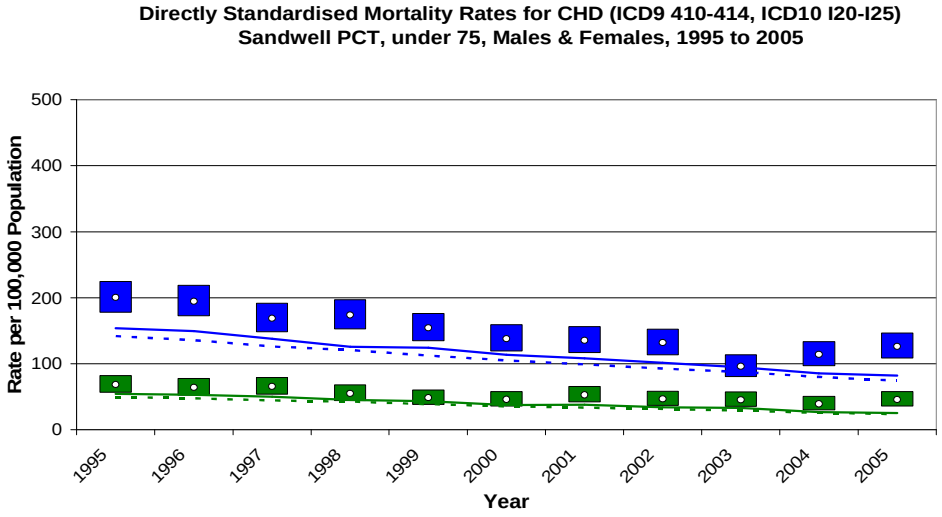




3.4 Mortality from Coronary Heart Disease (CHD) Aged Under 75

Figure 3.4.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





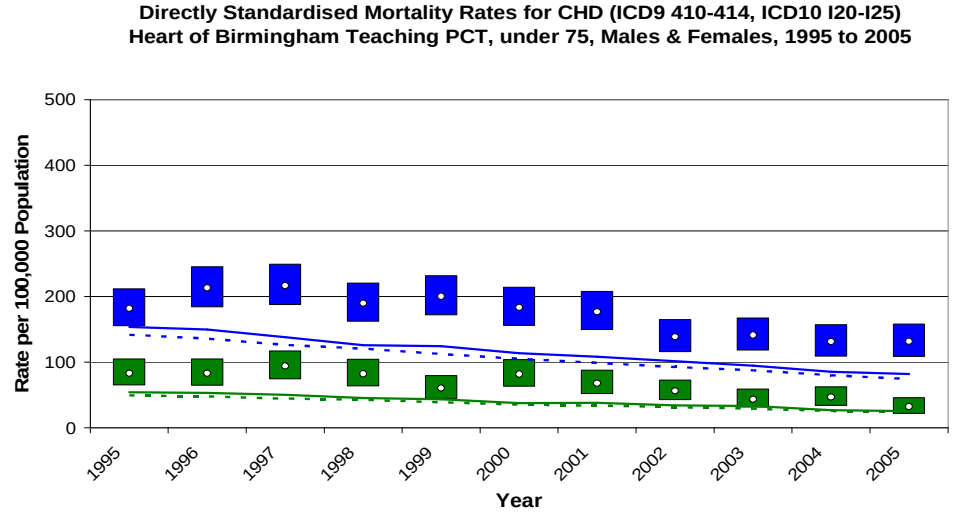
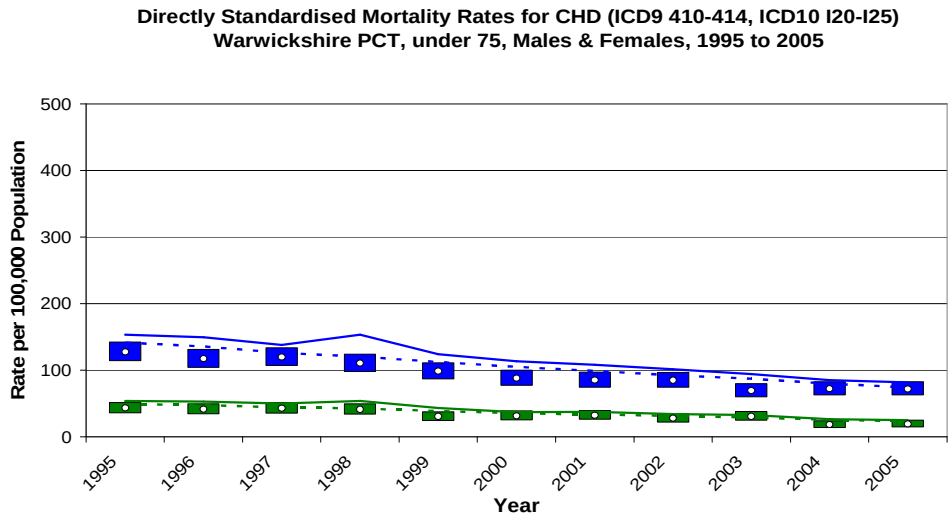
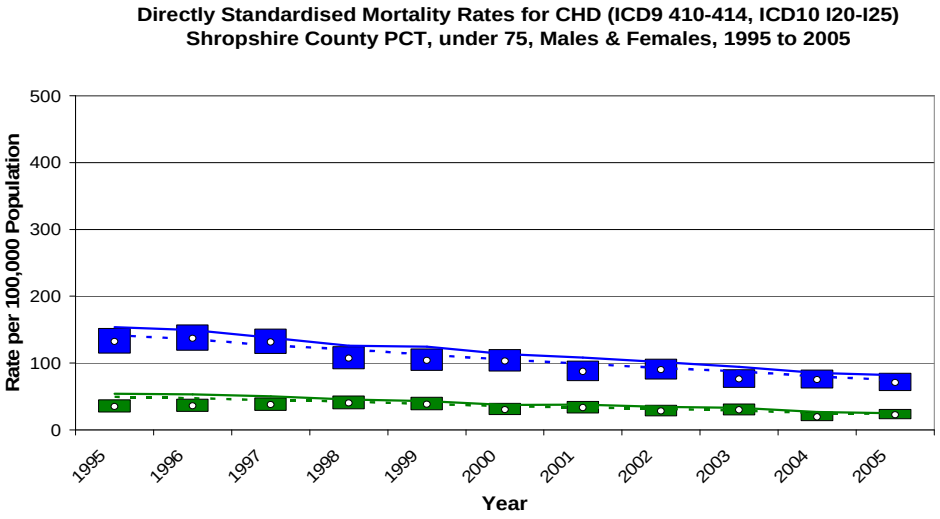
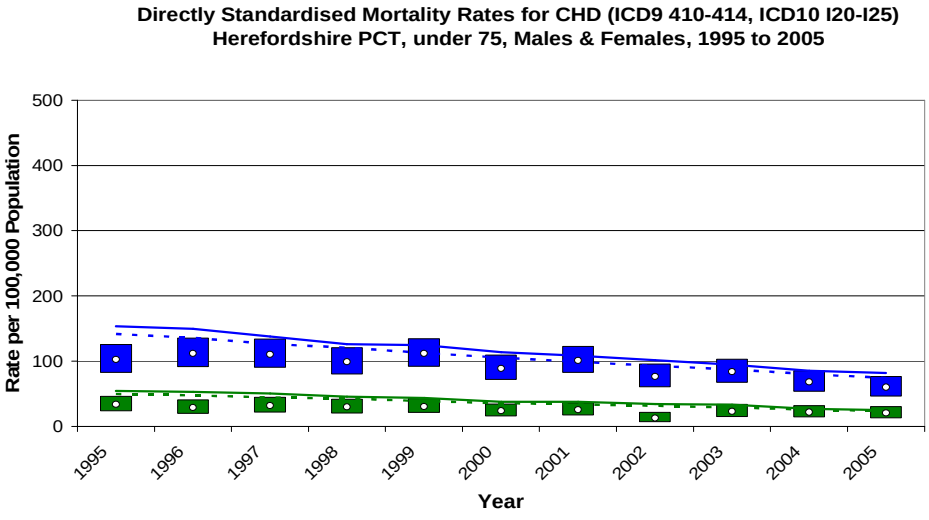


Figure 3.4.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

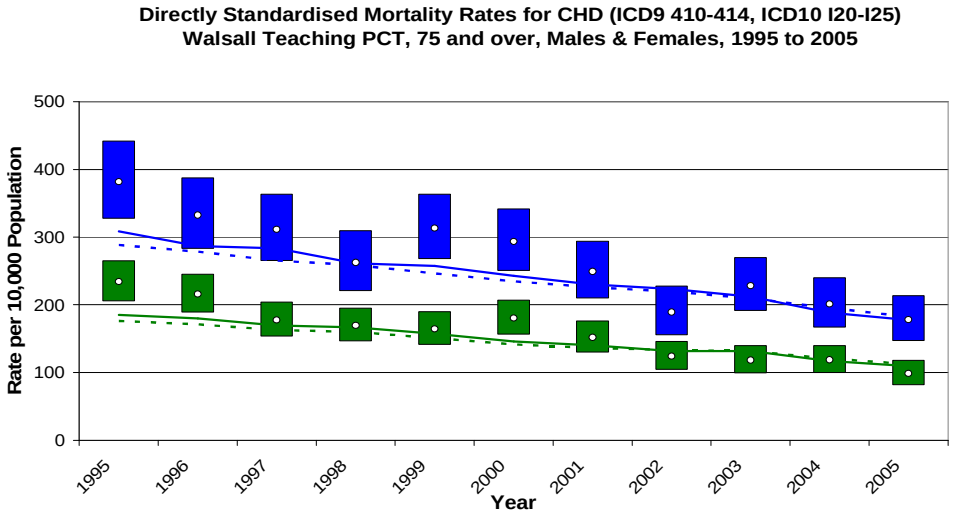


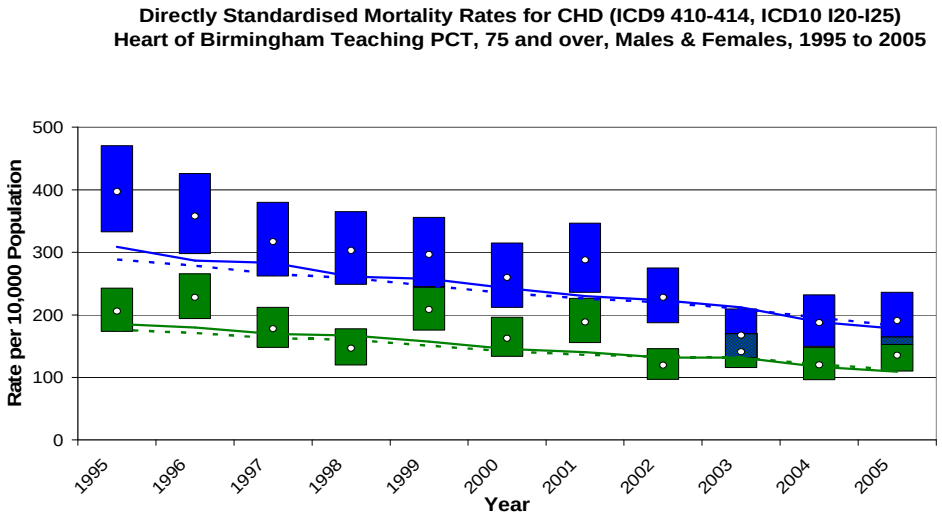




3.5 Mortality from Coronary Heart Disease Aged 75 and Over

Figure 3.5.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





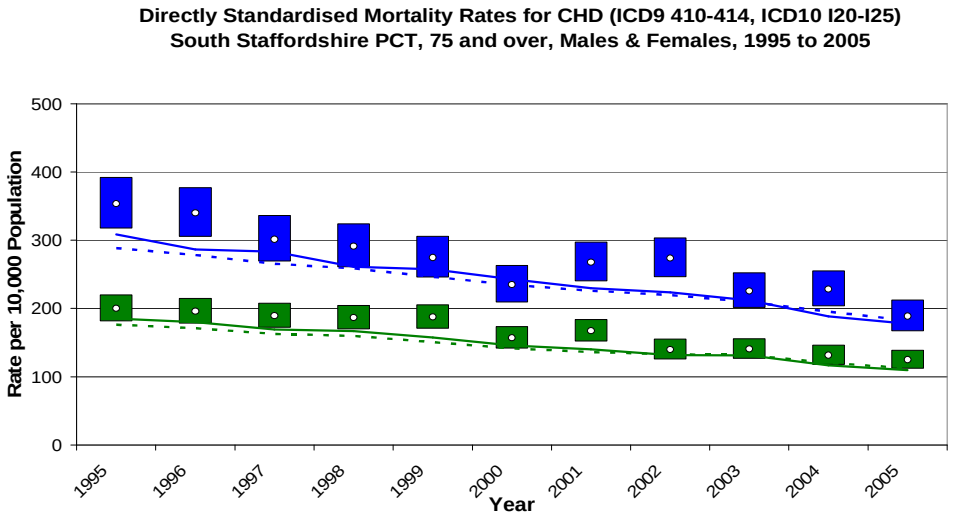
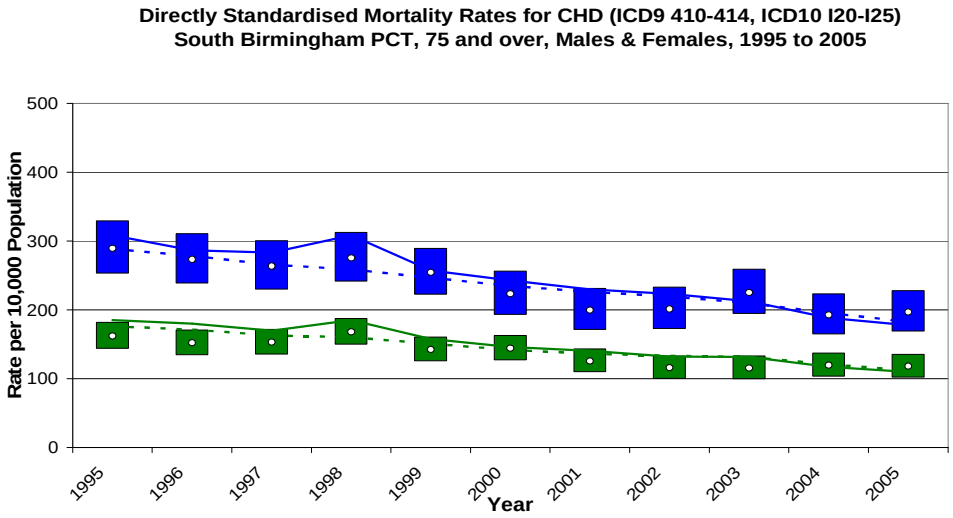
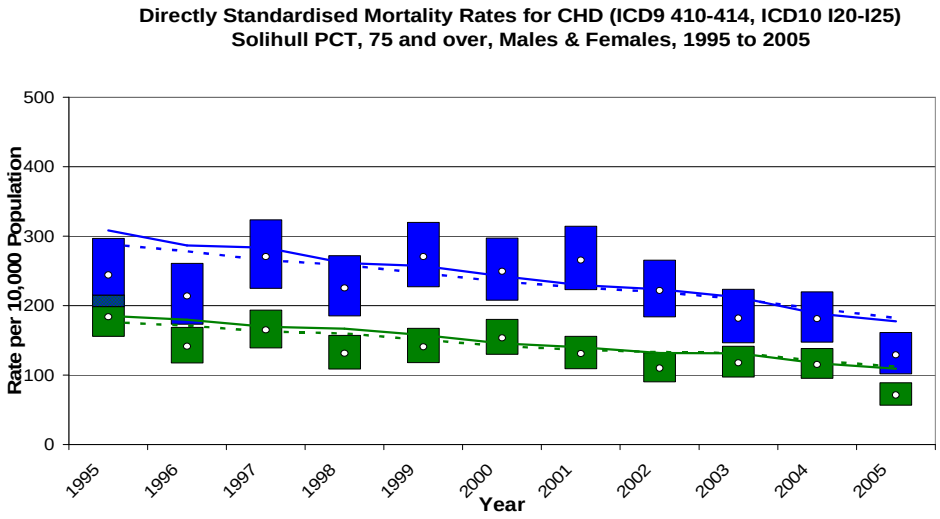
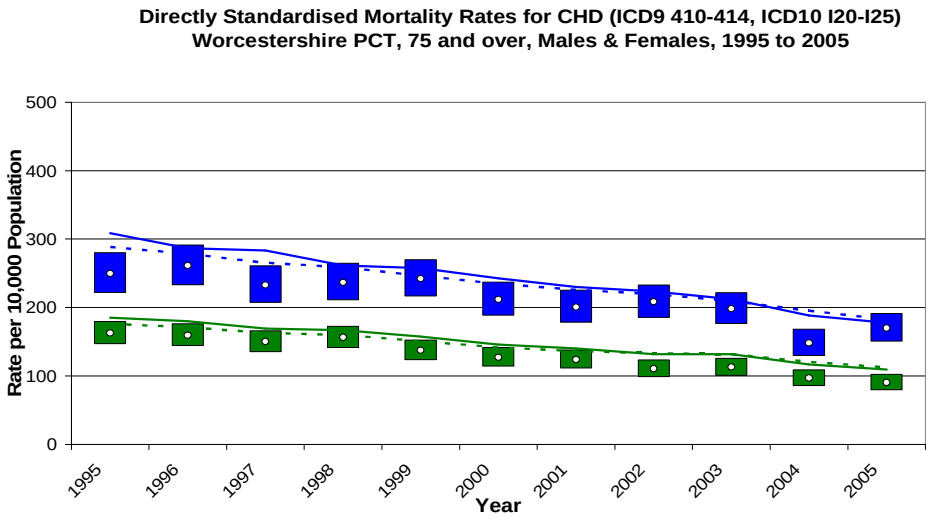


Figure 3.5.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

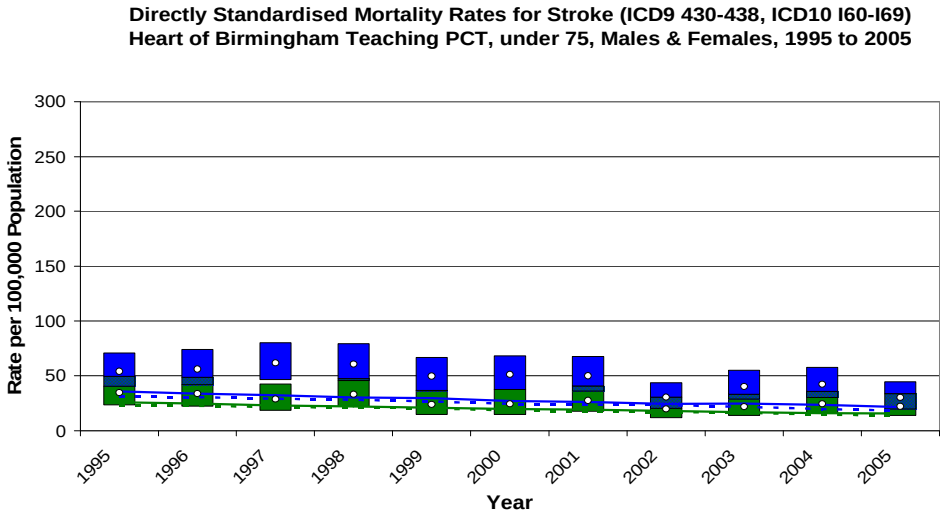


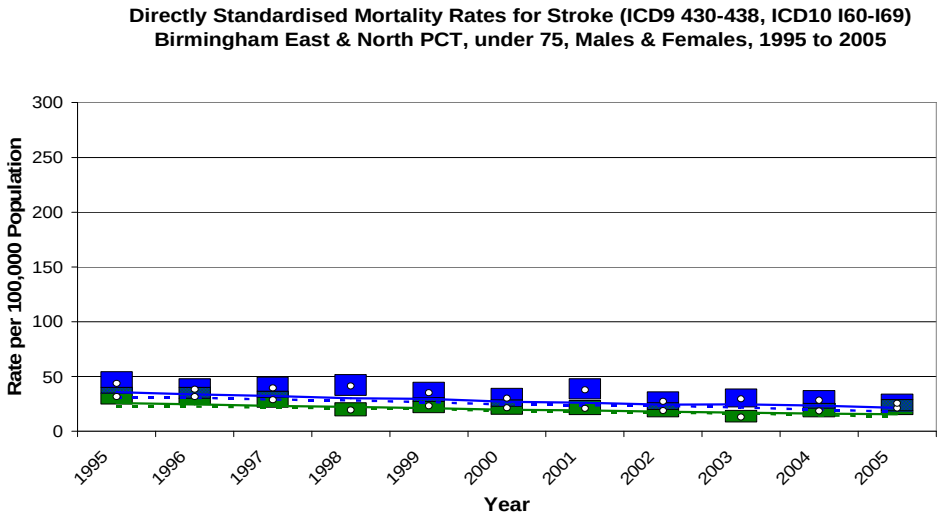




3.6 Mortality from Stroke Aged Under 75

Figure 3.6.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





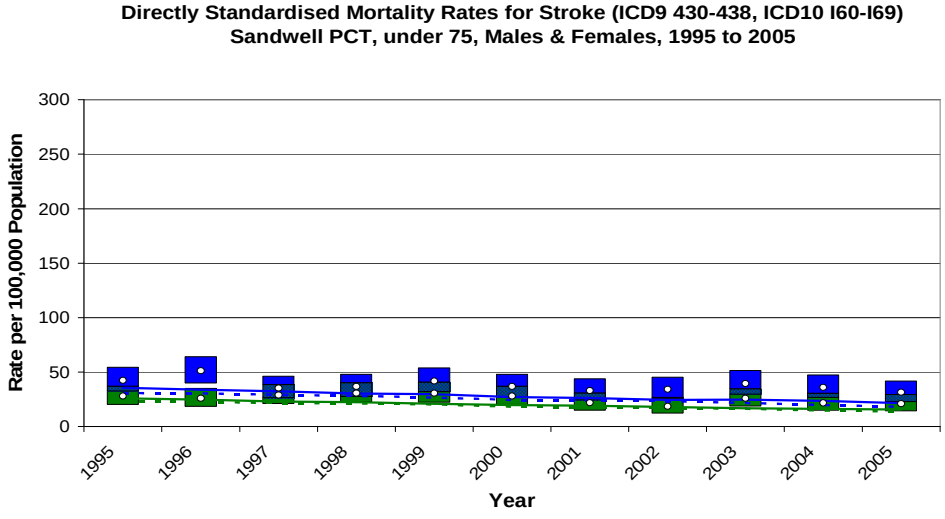
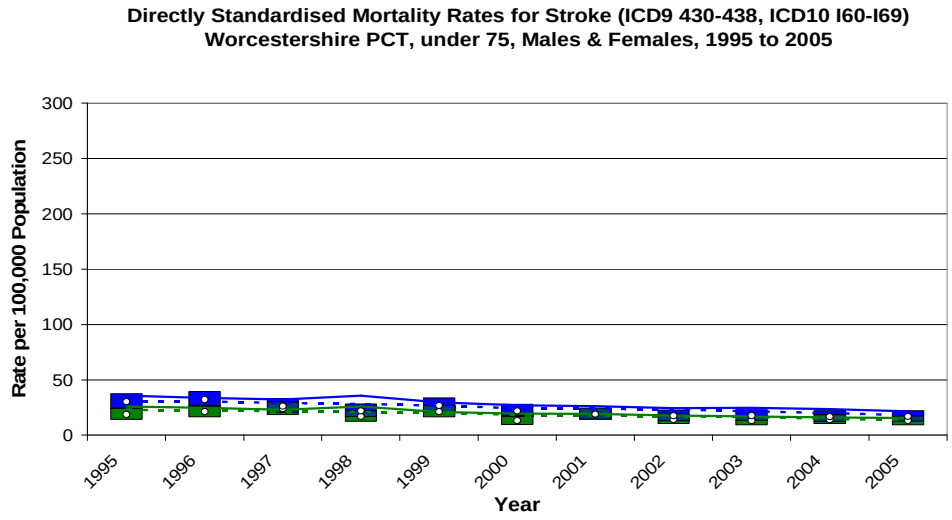
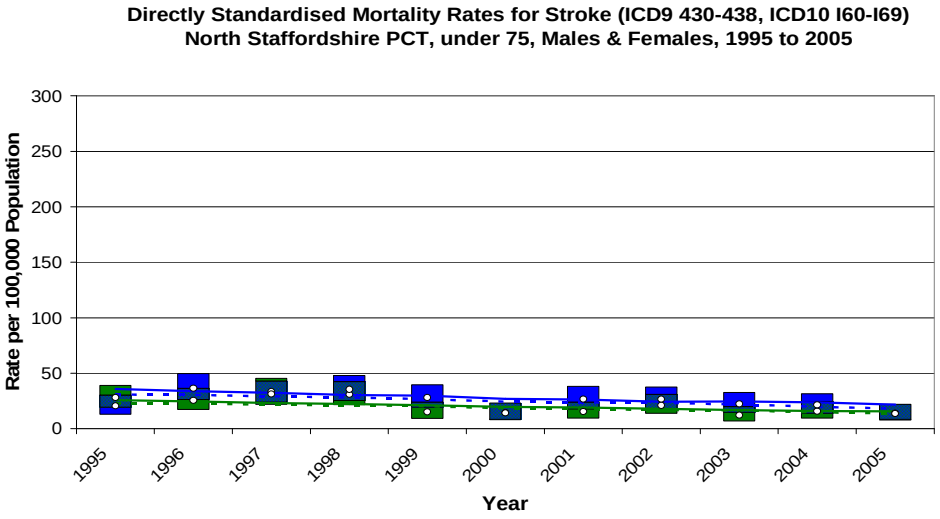
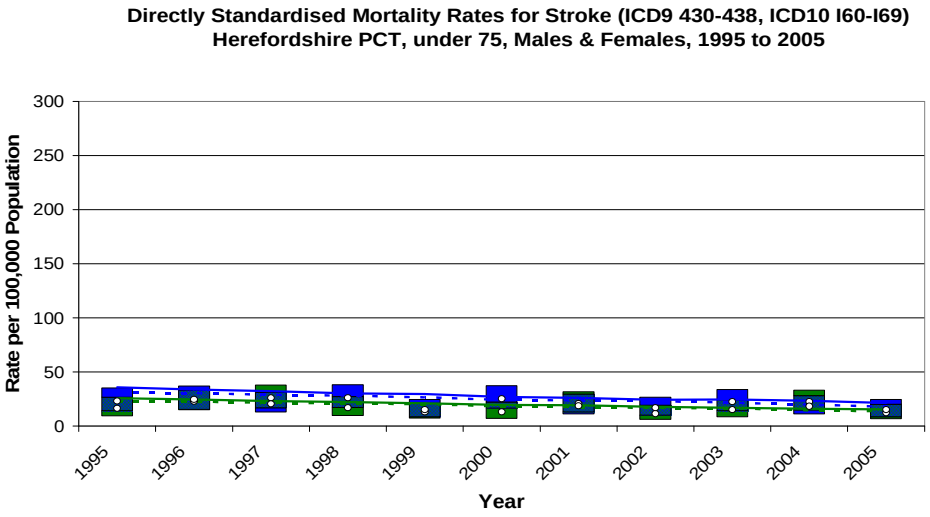


Figure 3.6.2. PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

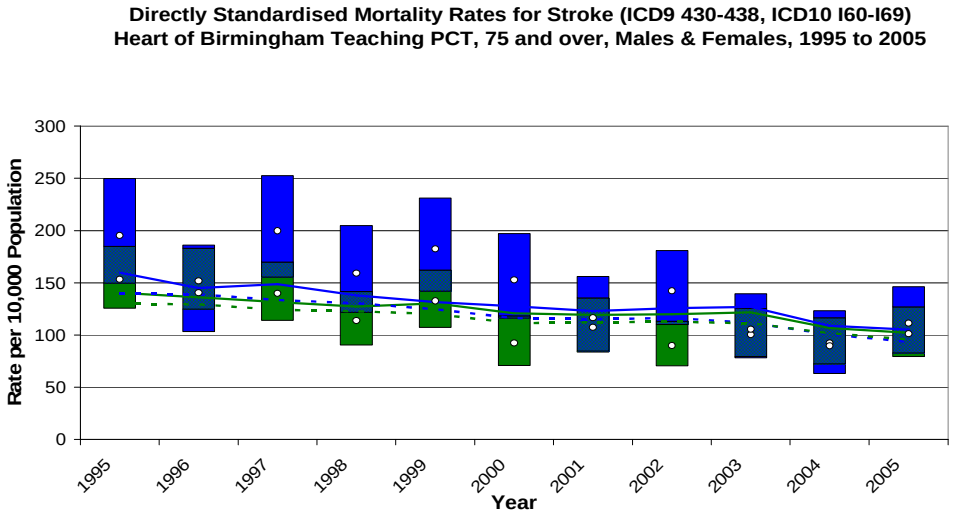


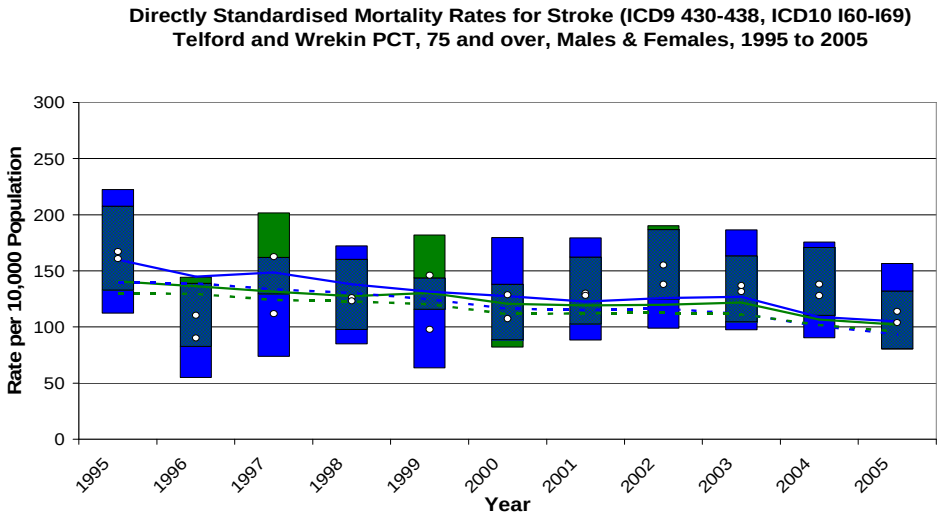




3.7 Mortality from Stroke Aged 75 and Over

Figure 3.7.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





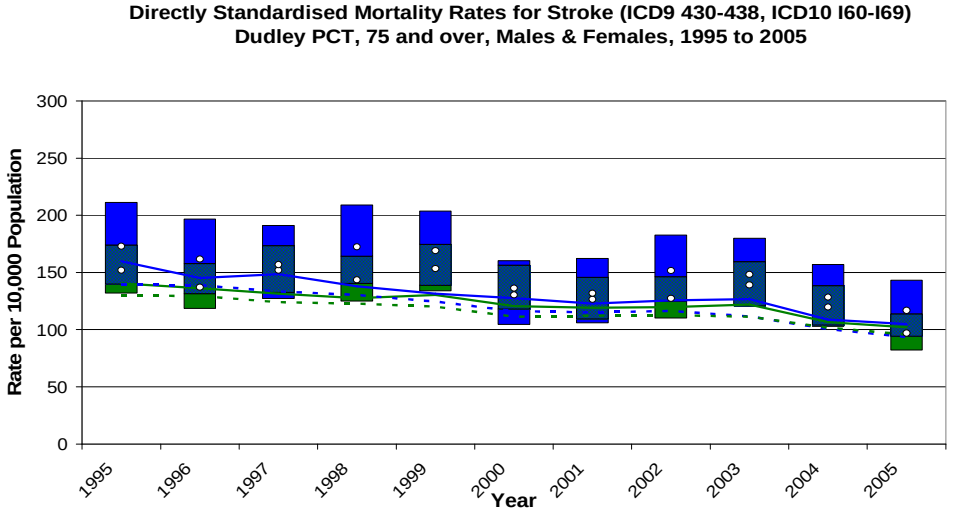
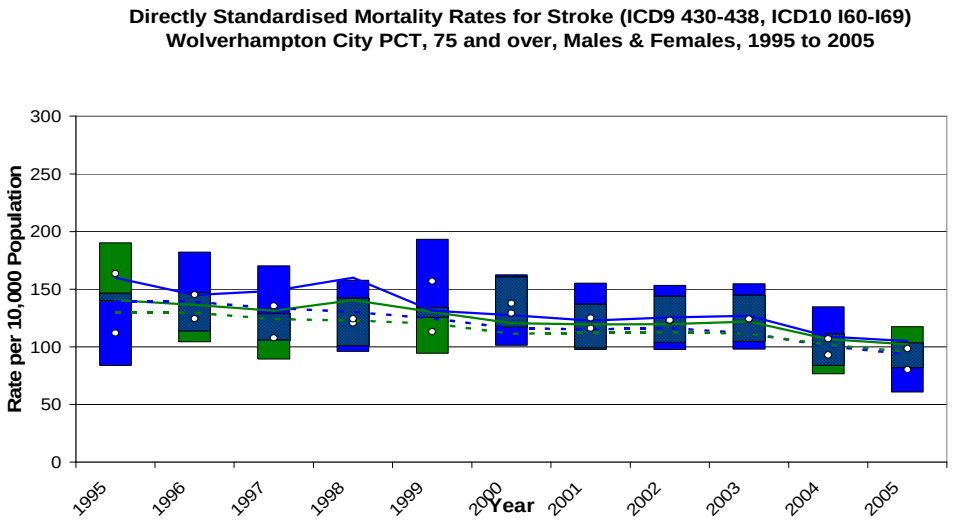
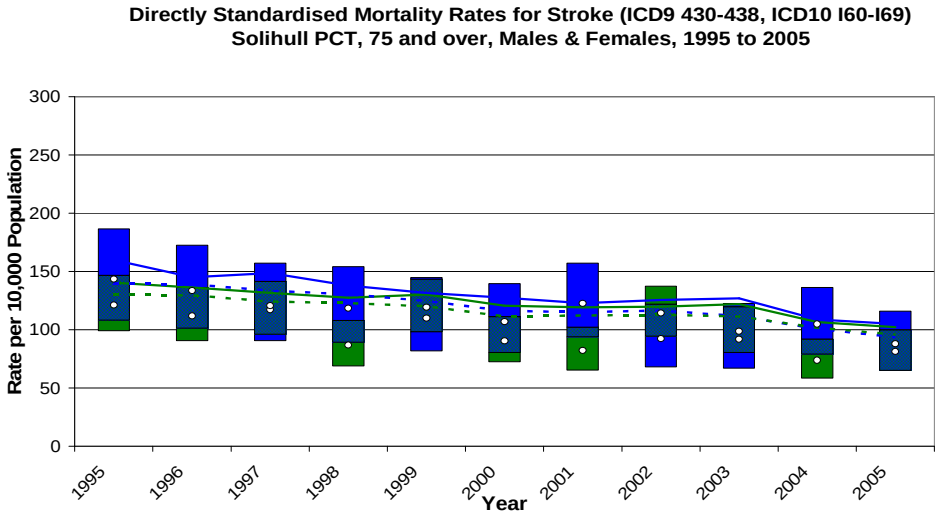
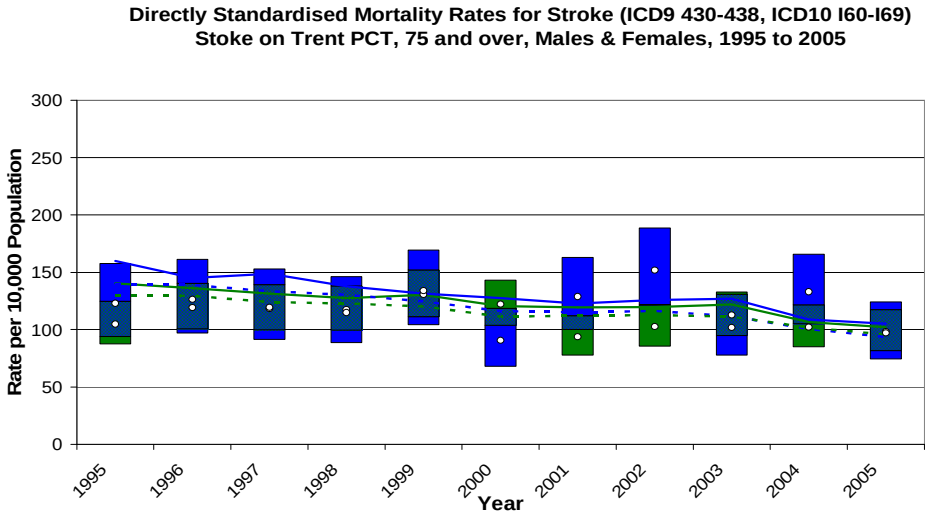


Figure 3.7.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

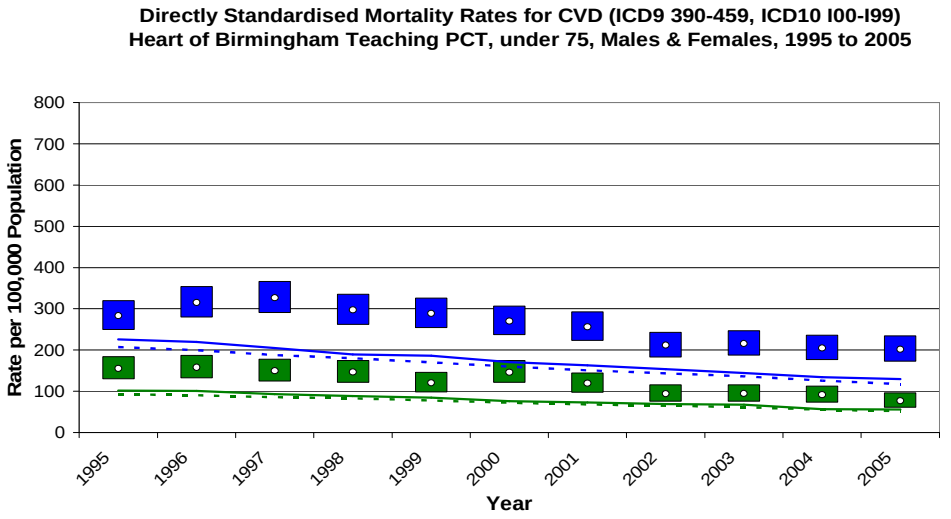


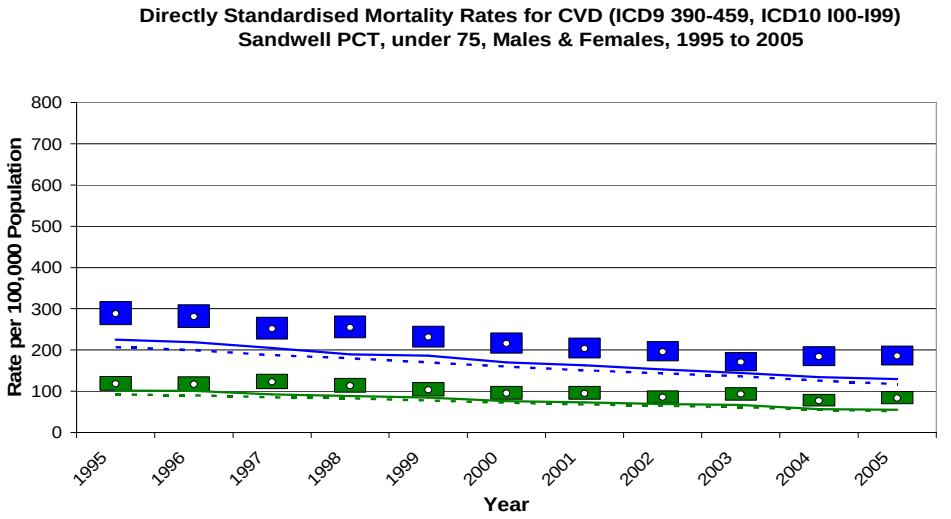




3.8 Mortality from All Circulatory Disease Aged Under 75

Figure 3.8.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





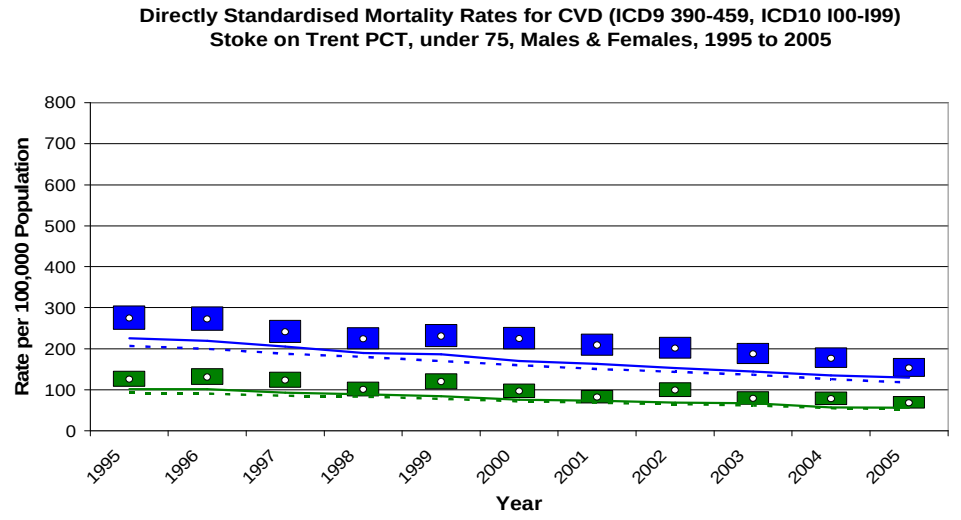
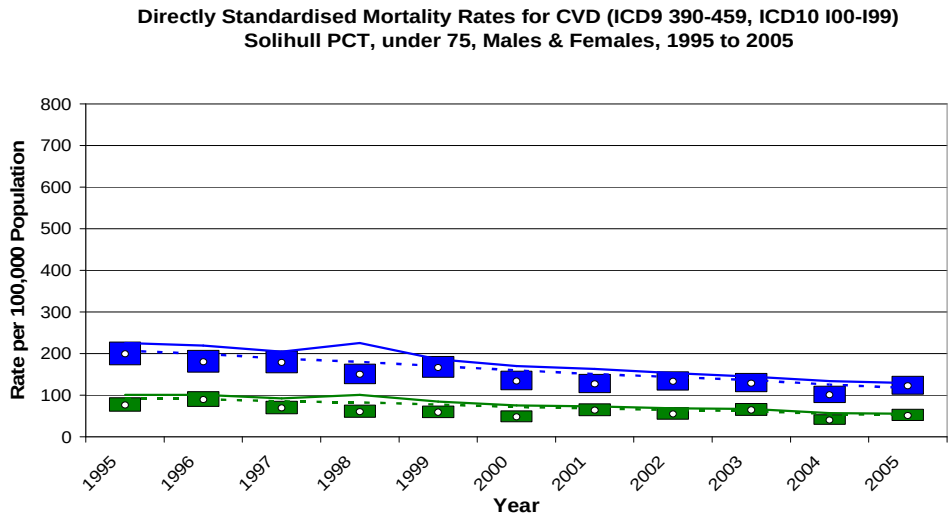
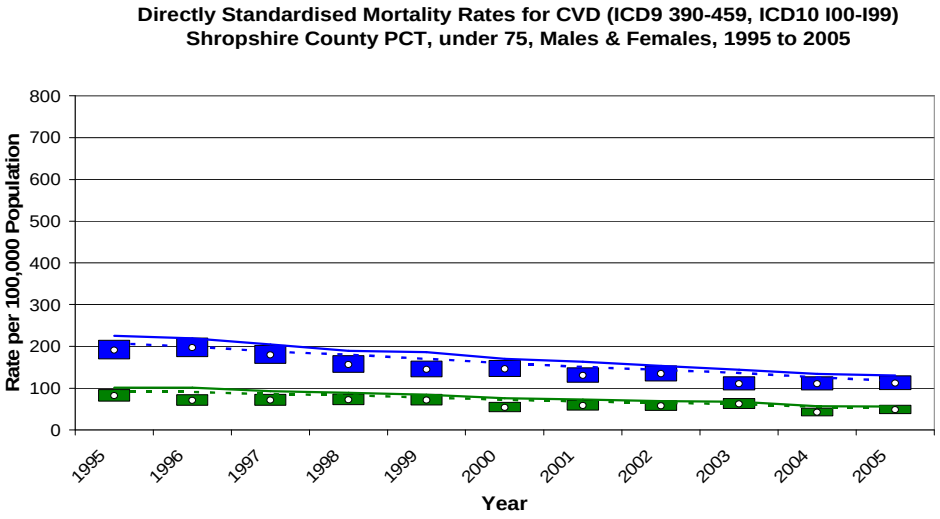
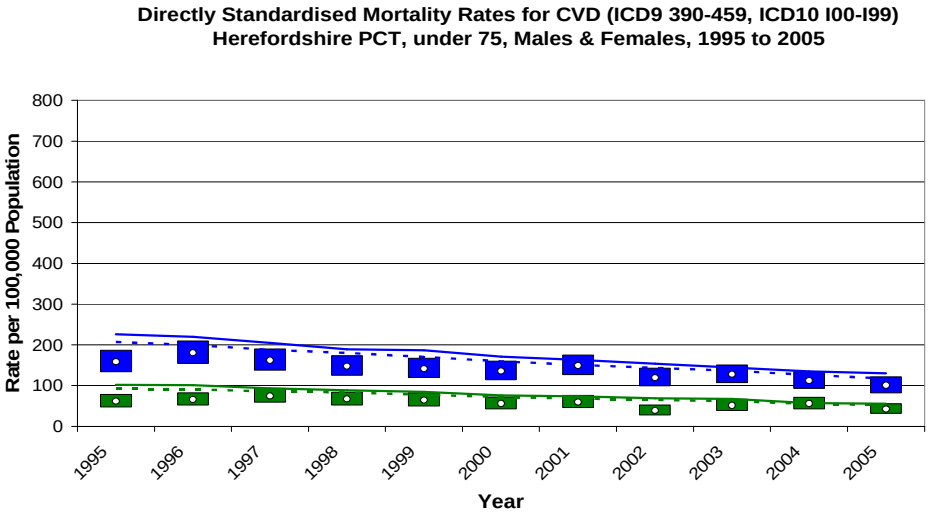


Figure 3.8.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

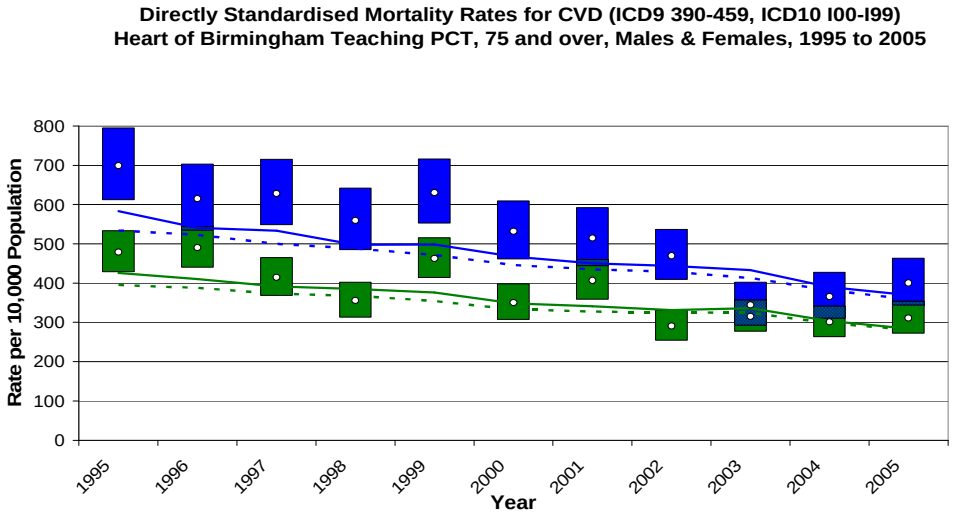


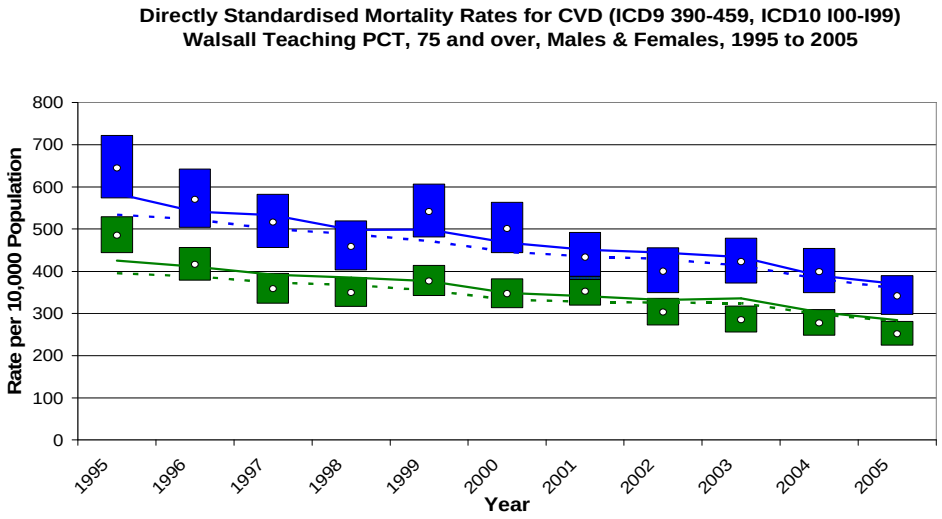




3.9 Mortality from All Circulatory Disease Aged 75 and Over

Figure 3.9.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





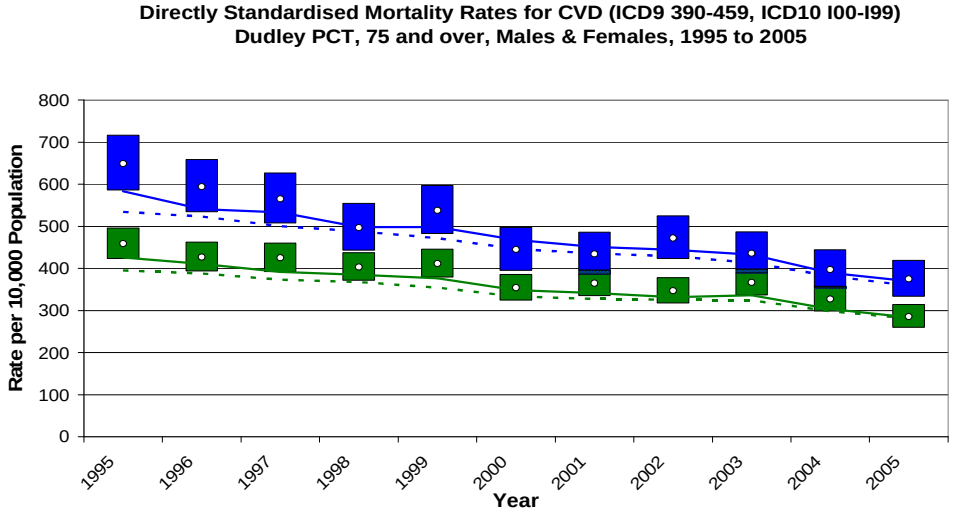
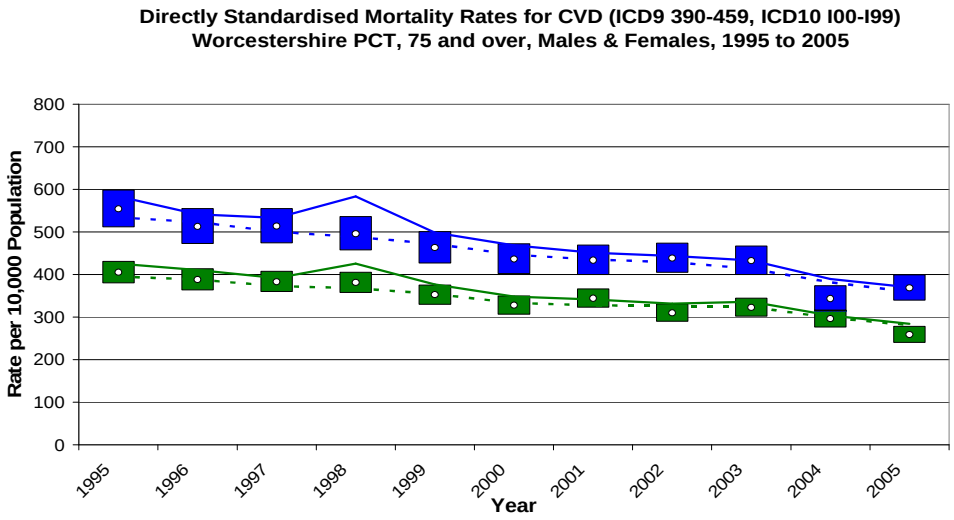
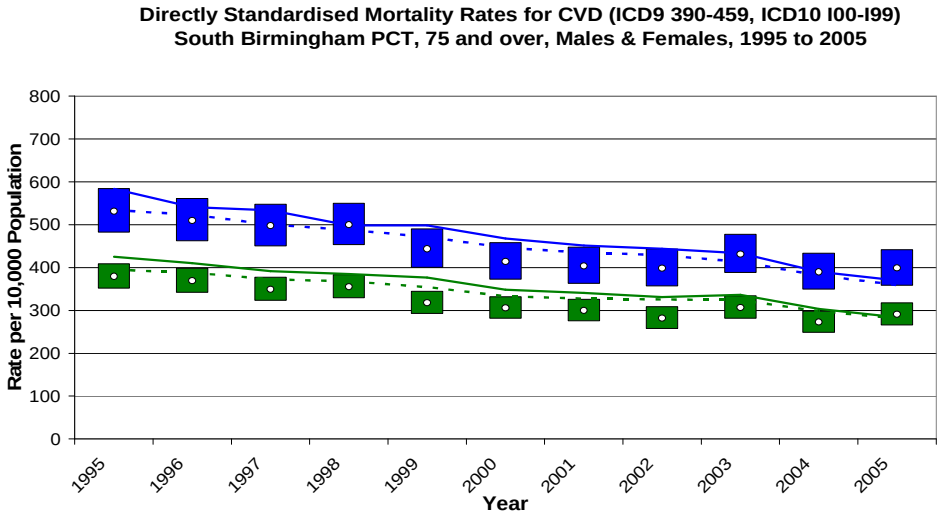
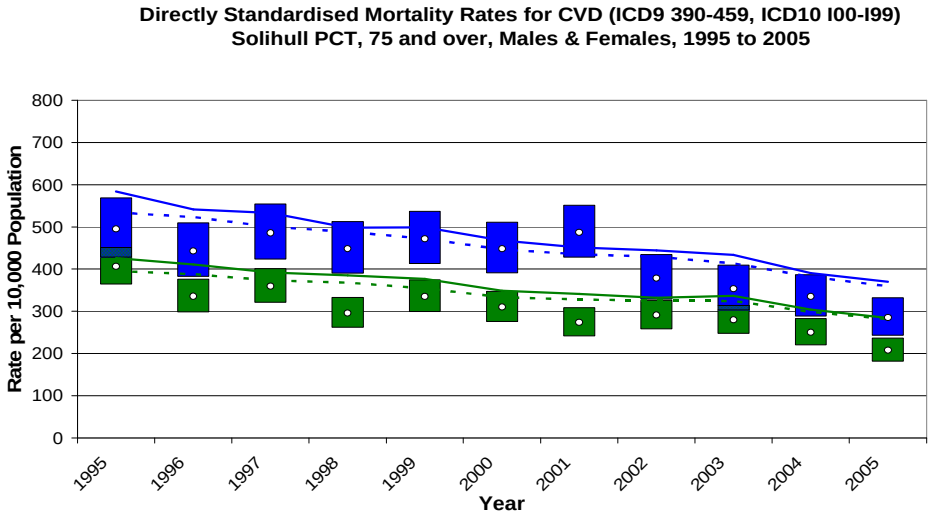


Figure 3.9.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

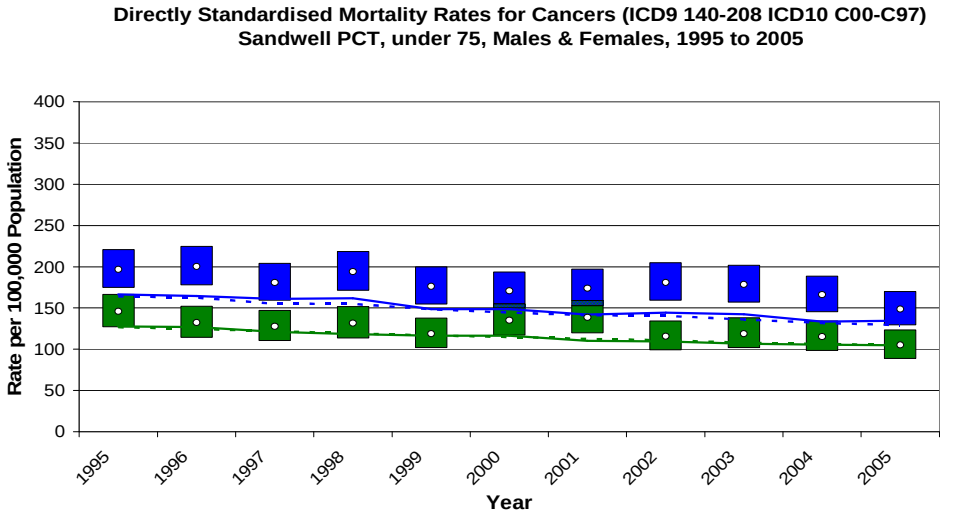


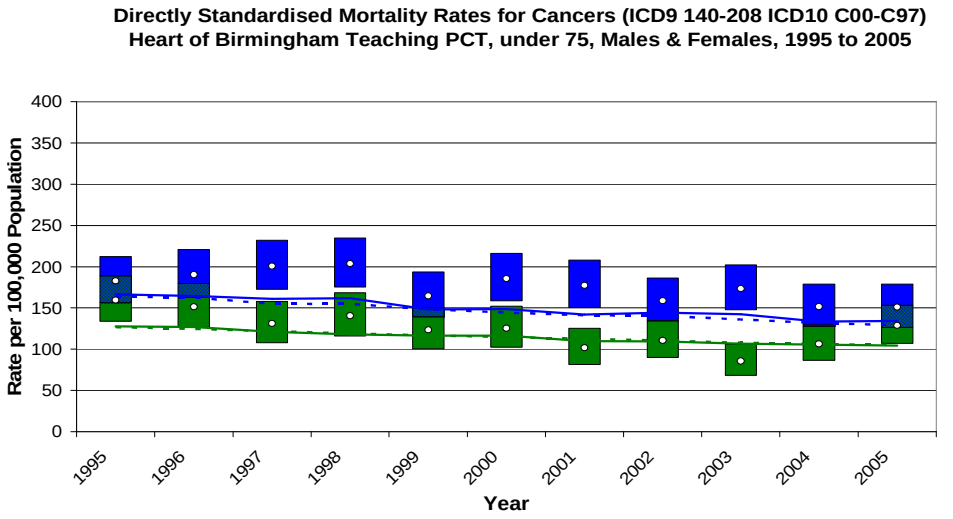




3.10 Mortality from All Cancers Aged Under 75

Figure 3.10.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





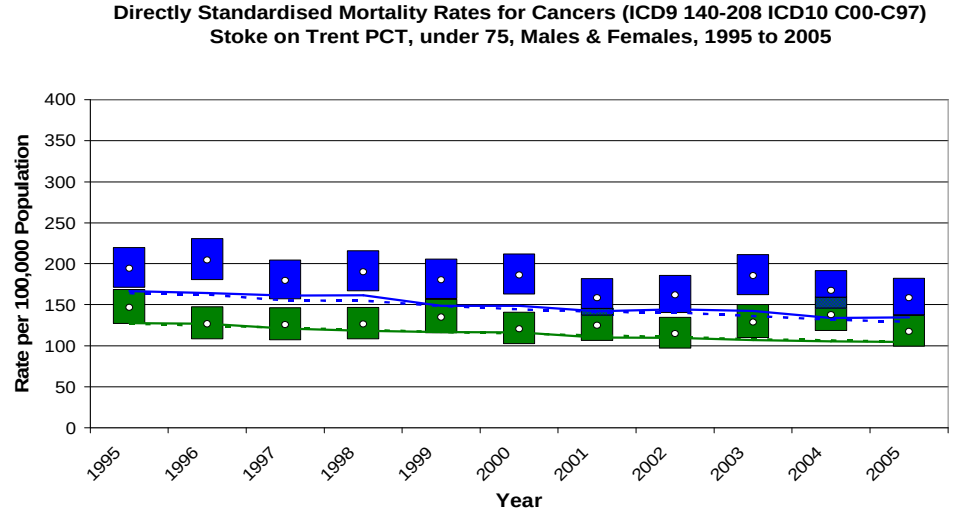
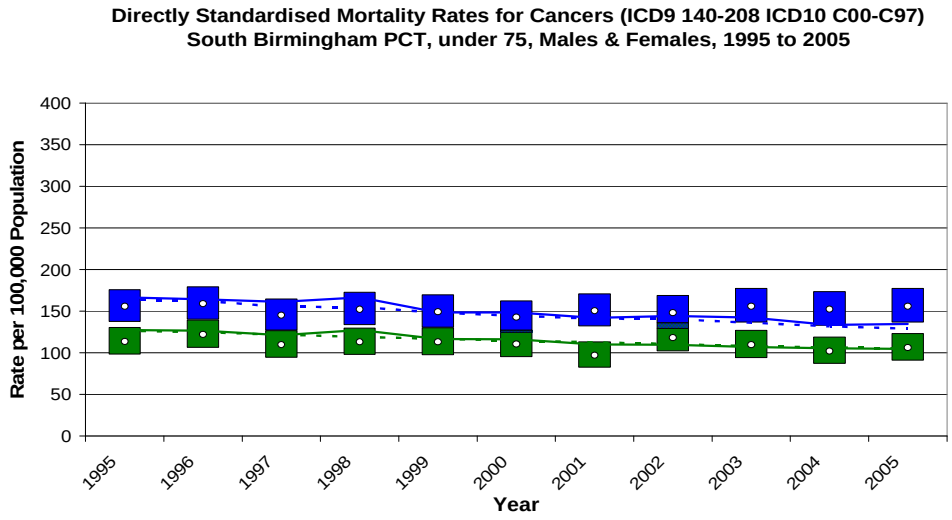
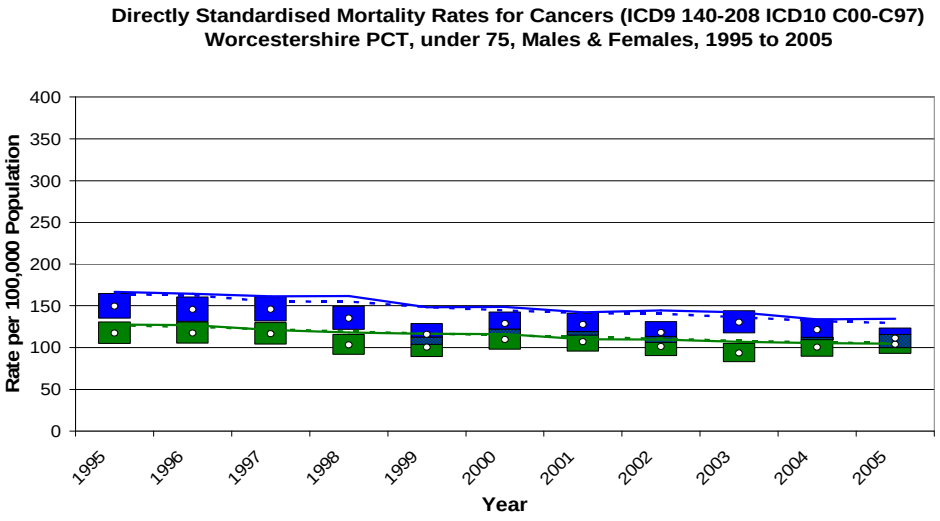
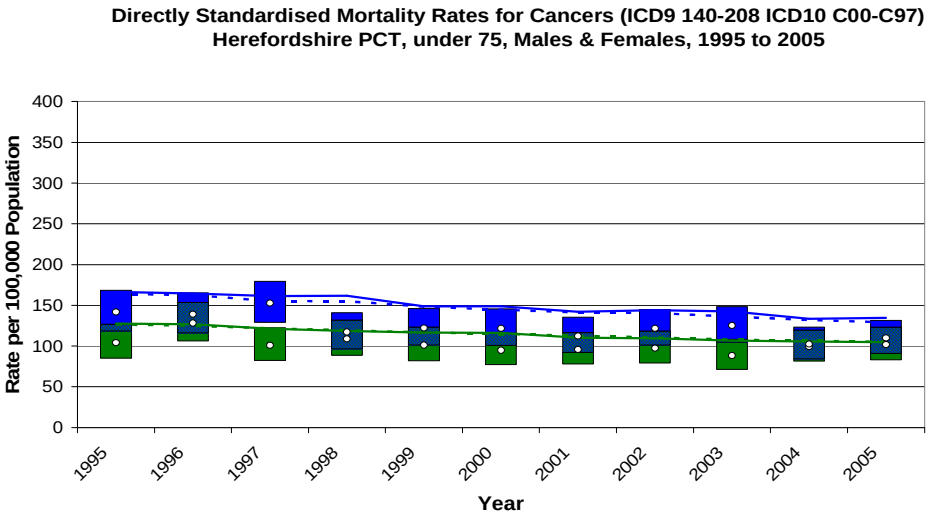


Figure 3.10.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

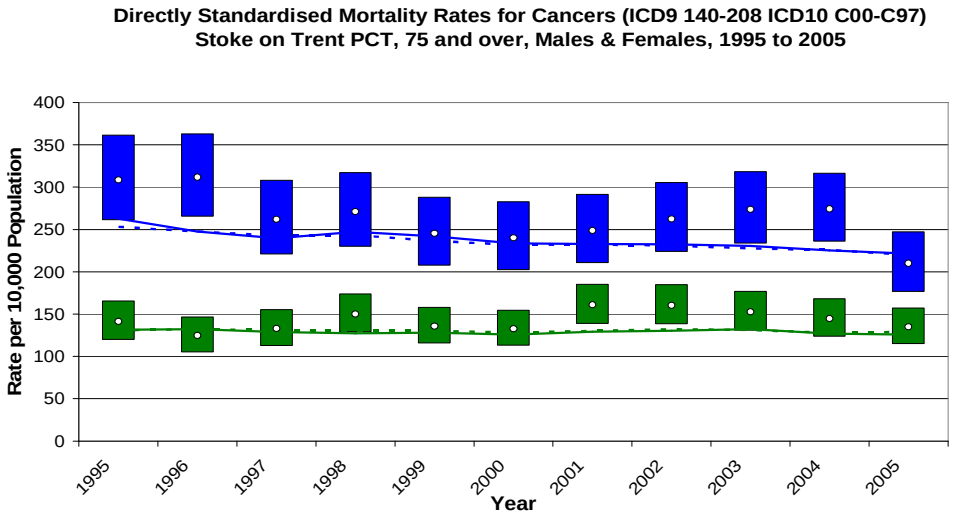


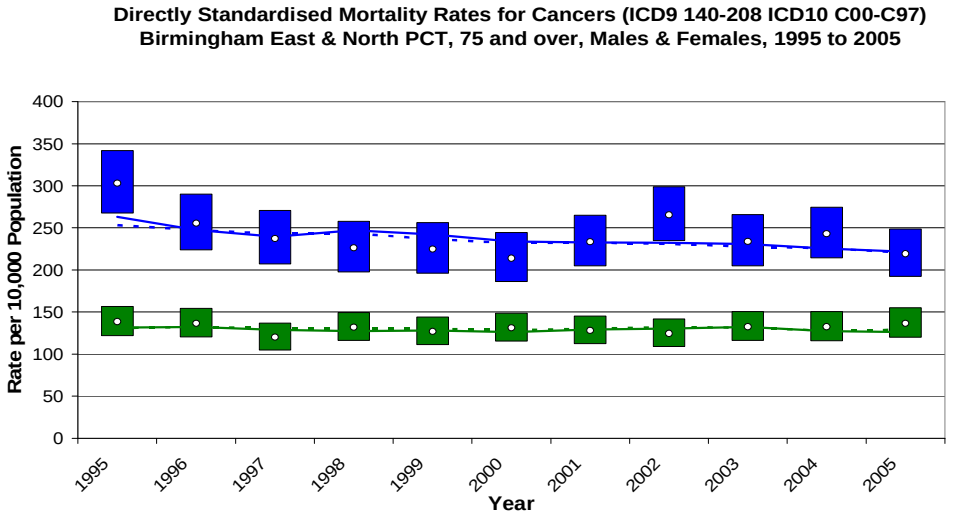




3.11 Mortality from All Cancers Aged 75 and Over

Figure 3.11.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





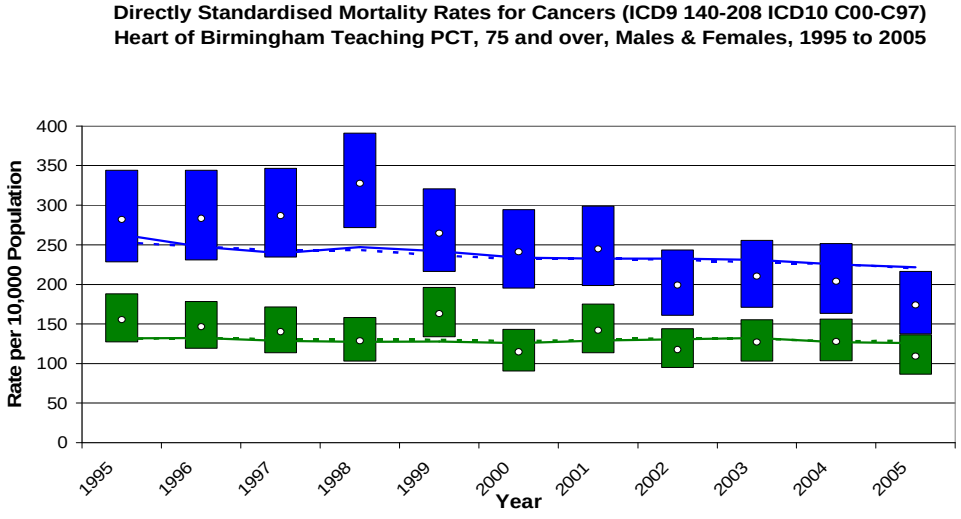
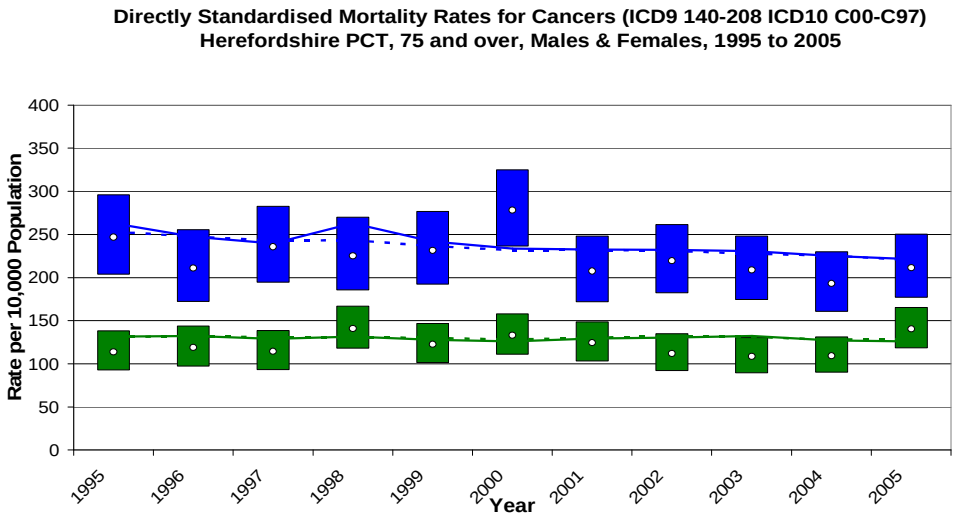
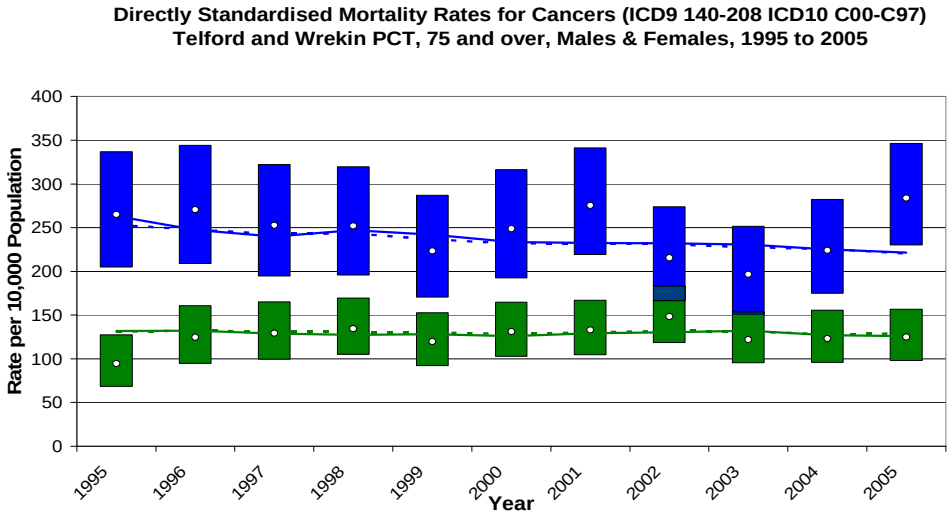
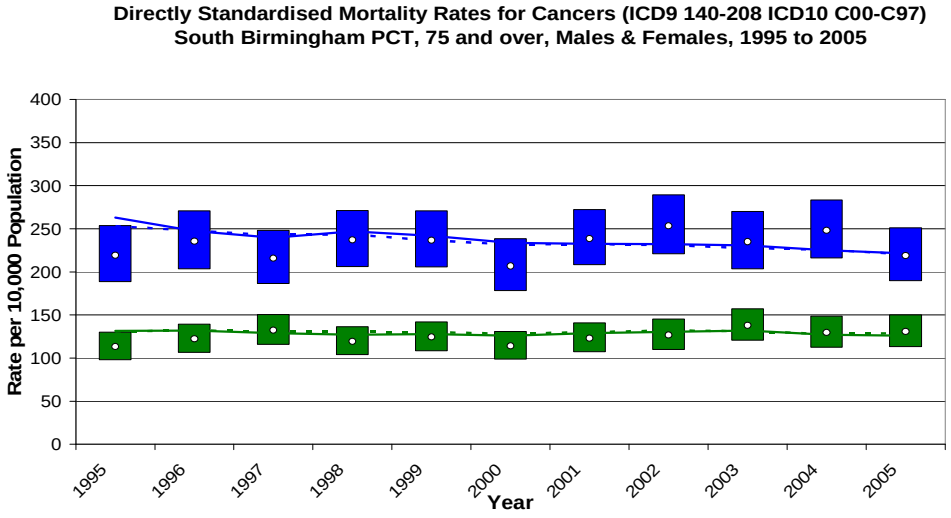


Figure 3.11.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

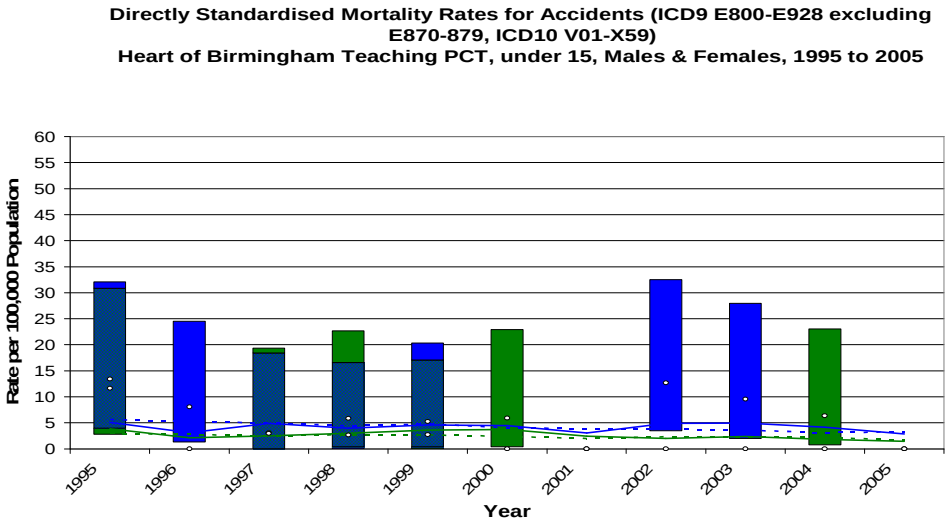


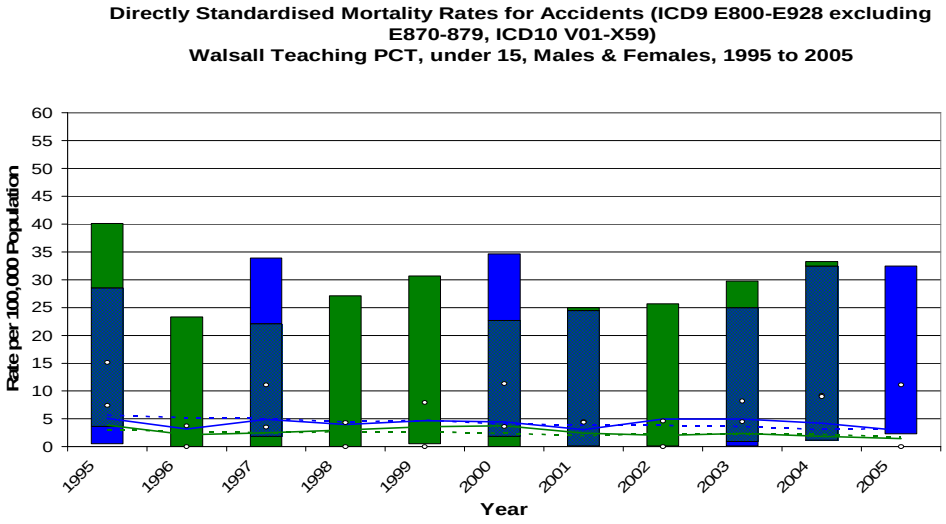




3.12 Mortality from Accidents Aged Under 15

Figure 3.12.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





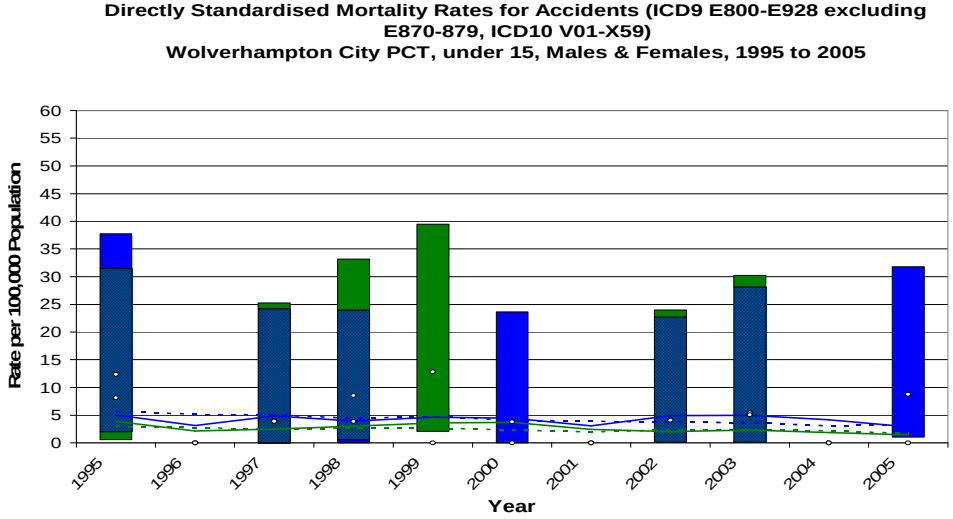
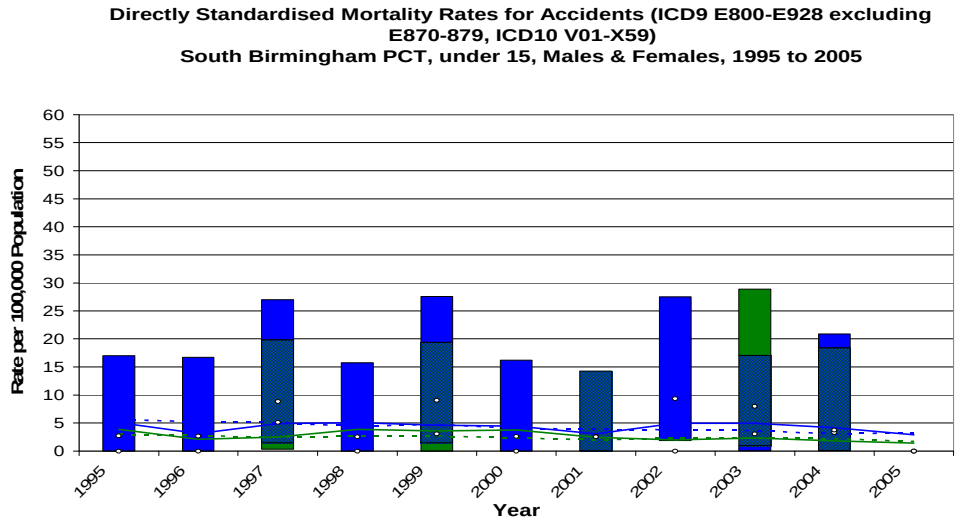
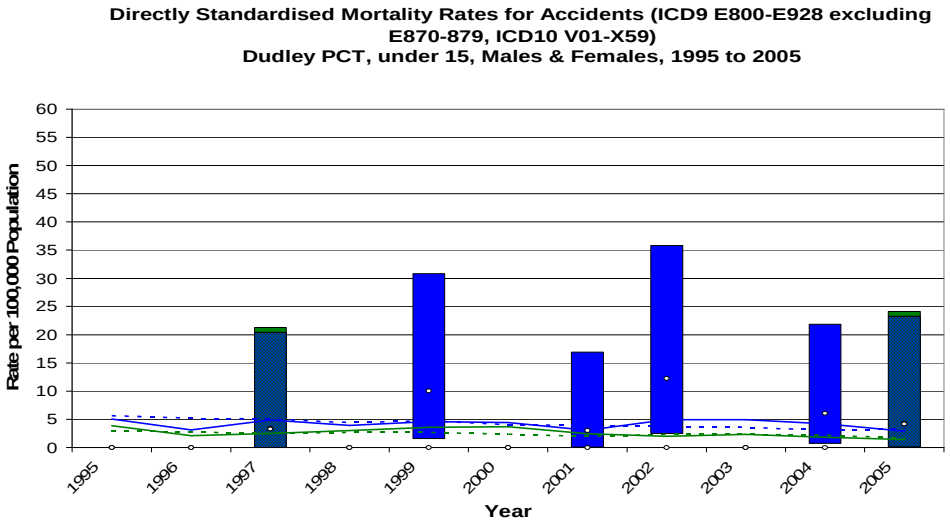
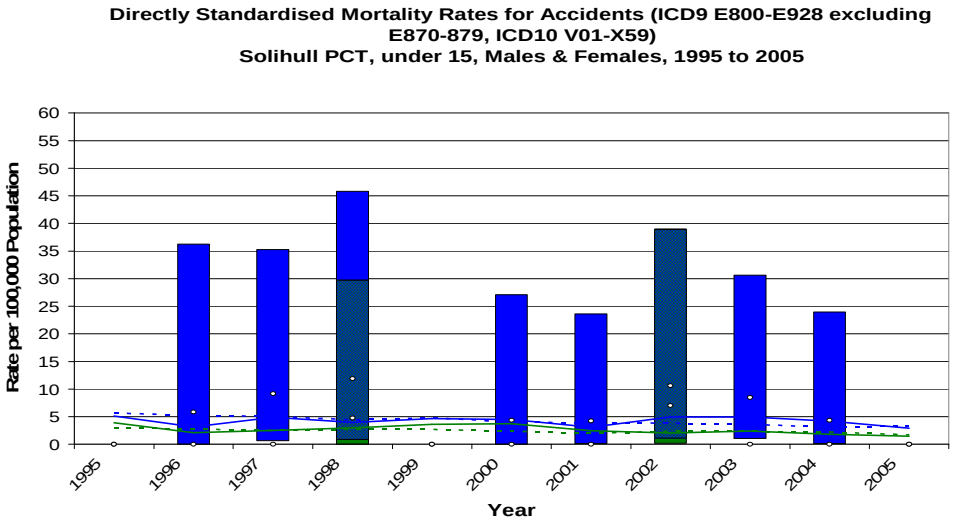


Figure 3.12.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)

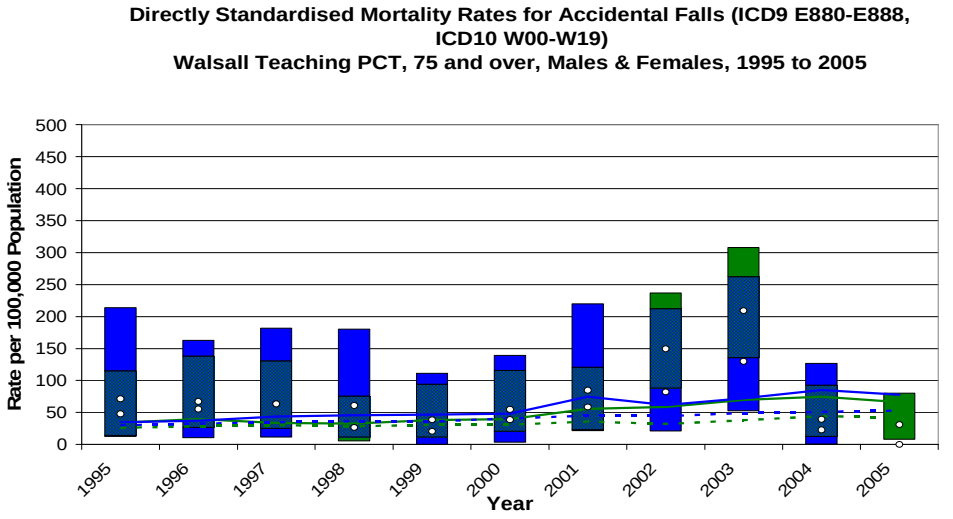


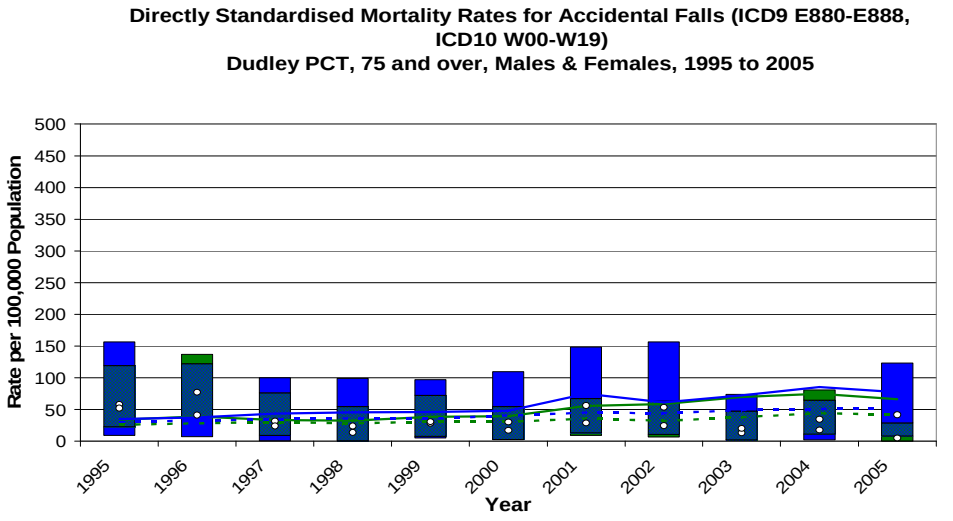




3.13 Mortality from Accidental Falls Aged 75 and Over

Figure 3.13.1: PCTs with DSRs that fall into the highest 3 of all West Midlands PCTs (1995 baseline)





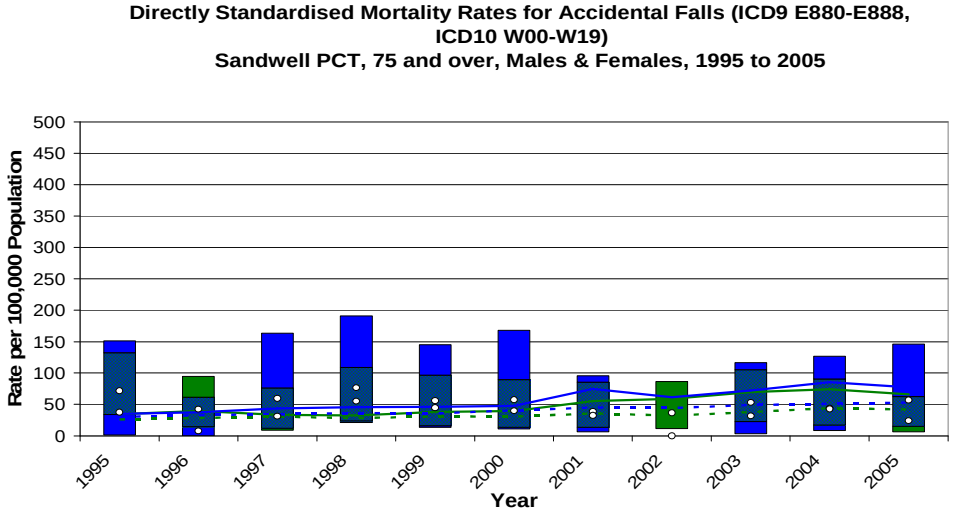
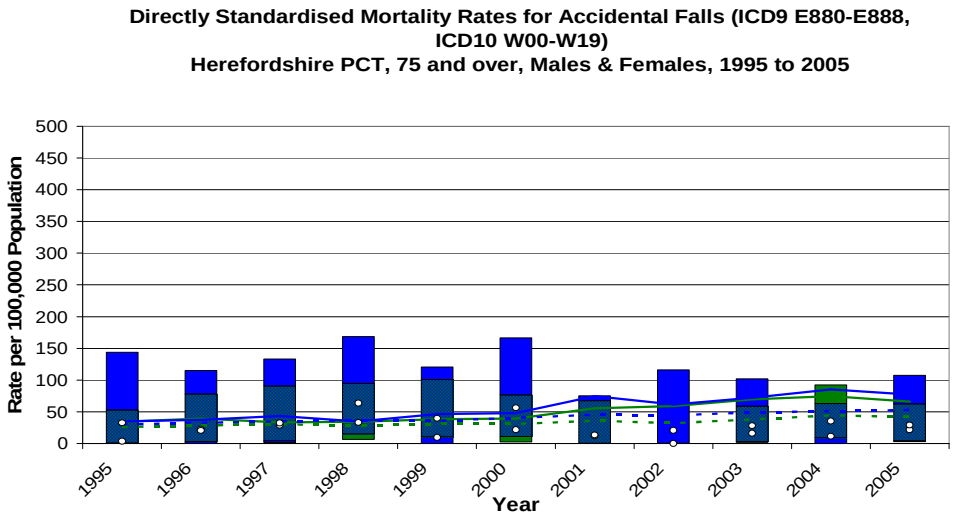
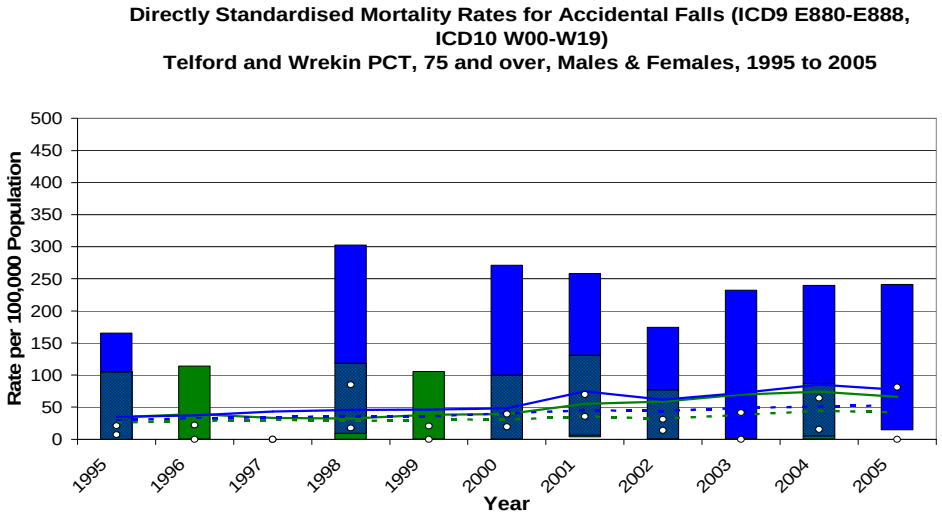
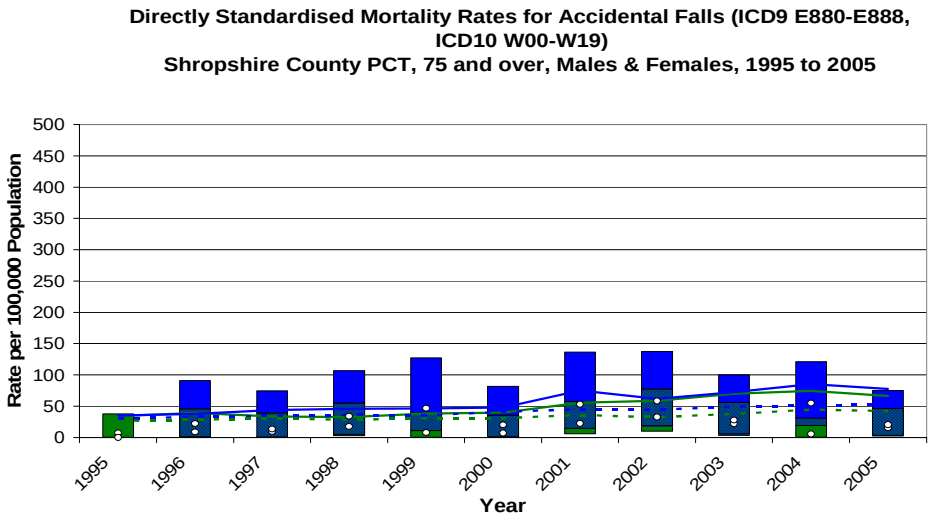


Figure 3.13.2: PCTs with DSRs that fall into the lowest 3 of all West Midlands PCTs (1995 baseline)







Reference

1) Office of National Statistics experimental Mid-year Population Estimates 2001 to 200 [Online] http://www.statistics.gov.uk/statbase/Product.asp?vlnk=601&More=N accessed on 25th May 2007

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CHAPTER FOUR: FRACTURE, NECK OF FEMUR IN THE WEST MIDLANDS

4.1 Introduction

The death rate from fracture of femur is apparently higher in West Midlands than in any other region. Among 65-84 year olds the age-standardised death rate from this cause is nearly three and a half times that of the lowest region (Yorkshire and Humberside) (Figure 4.1) and among those aged 85 and over a similar difference is observed (Figure 4.2).

Figure 4.1: Regional comparison (Age 65-84) deaths, 2003-05

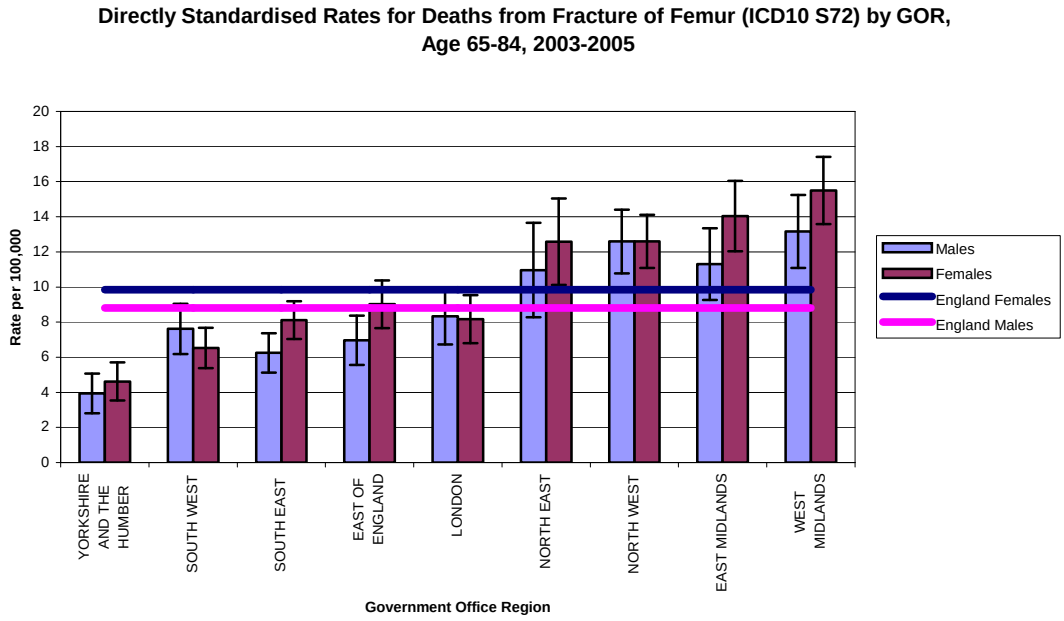
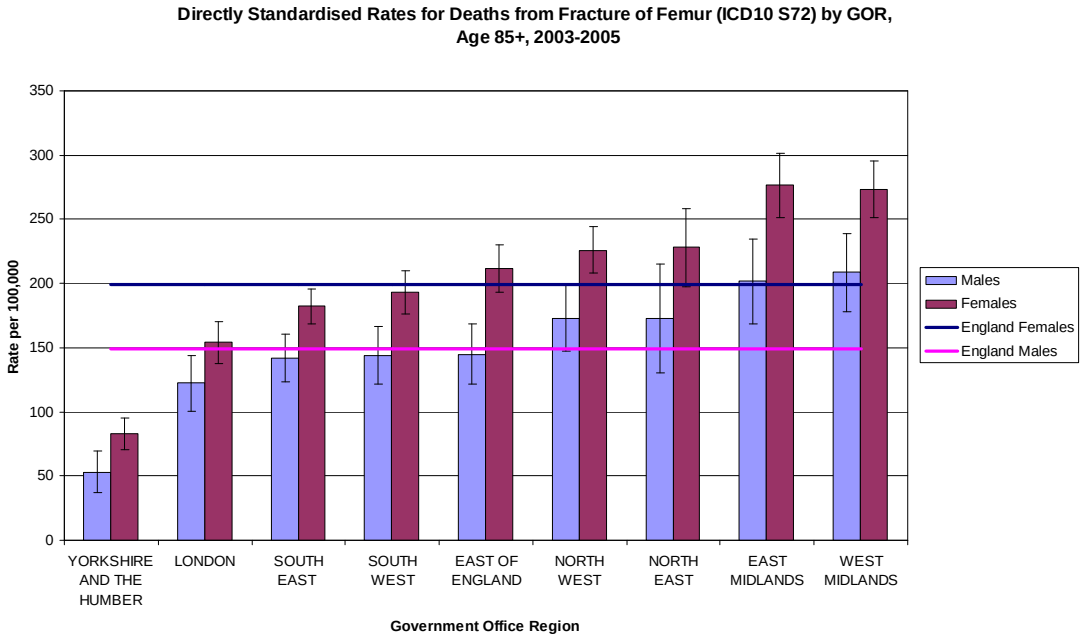


Figure 4.2: Regional comparison (Age 85+) deaths, 2003-05

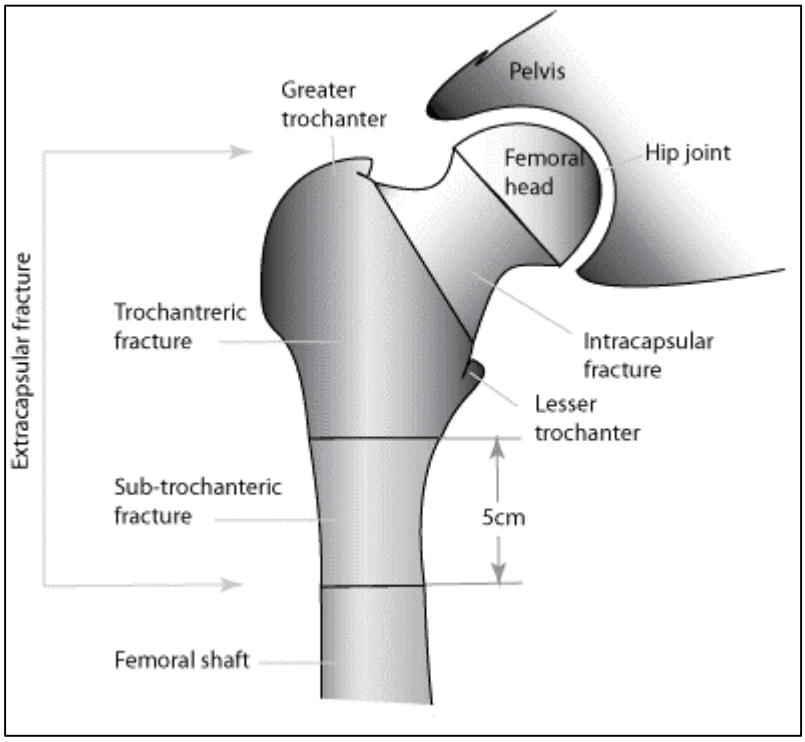


In the period 2003/05 fractured femur accounted for 148 deaths per year in the 65-84 age band in the West Midlands and 250 deaths per year in the 85 and over age band. Nearly all these fractures (90%) are fractured neck of femur (ICD10 S72.0); the next largest fraction being fracture of femur part unspecified (ICD10 S72.9) while the numbers of fractures of lower and mid shaft (ICD10 S72.3-S72.8) are negligible.

4.2 Anatomy and Clinical Presentation

The neck of femur may fracture in several places. The fracture may be intracapsular or extracapsular (trochanteric or sub trochanteric) (Figure 4.3). With intracapsular fracture the blood supply to the head of femur is impaired and there is a major risk of avascular necrosis and non-union, while with extracapsular fractures the blood supply is more robust and with adequate fixation the fracture usually unites well (1).

Figure 4.3: Anatomy of the hip joint



The fracture is most commonly the result of a fall or stumble. The fracture usually causes severe pain in the hip and inability to walk. Sometimes the person is unable to get up and has to lie where they have fallen until help comes.

4.3 Operative Management

In former days, treatment was commonly by traction with prolonged bed rest and the death rate was very high. Nowadays treatment nearly always involves fixation of the fracture or prosthetic replacement of the femoral head and early mobilisation. The surgical procedures are Primary open reduction (W19, W20, W21) Closed reduction (W24, W25, W26) or prosthetic replacement (W37, W38, W39, W46, W47, W48).

4.4 General Epidemiology

Death rates from fracture neck of femur rise steeply with age and are slightly higher in females than males (Figure 4.4). Age standardised death rates from this cause (ICD10 S72.0 from 2001, ICD9 820 & 821 before) have risen slightly in the past 15 years (Figure 4.5).

Figure 4.4: Deaths by quinary age band, England and Wales 2005

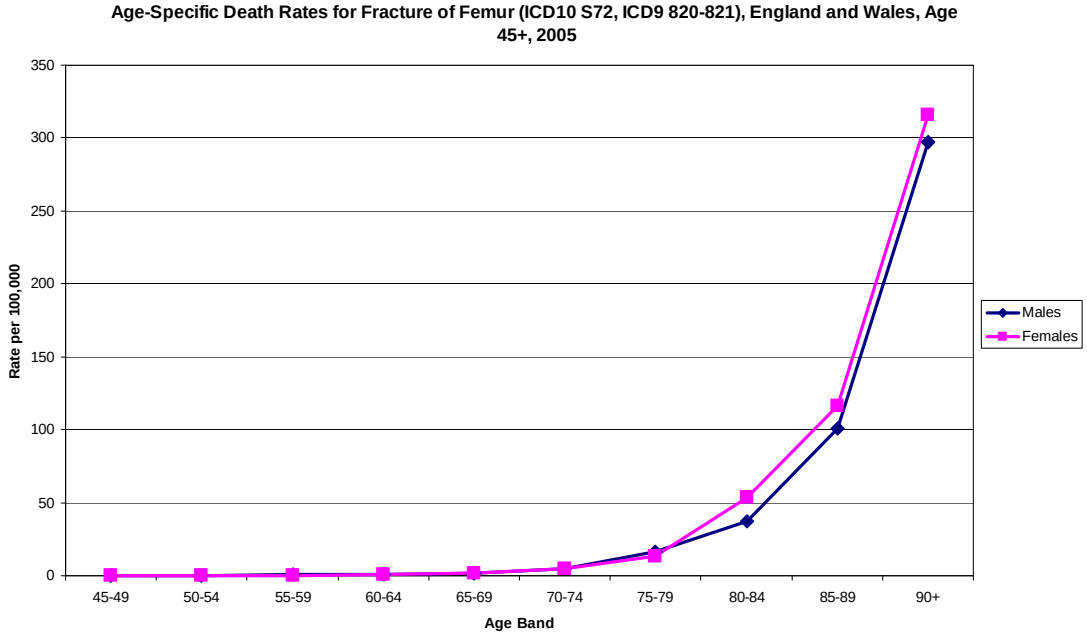
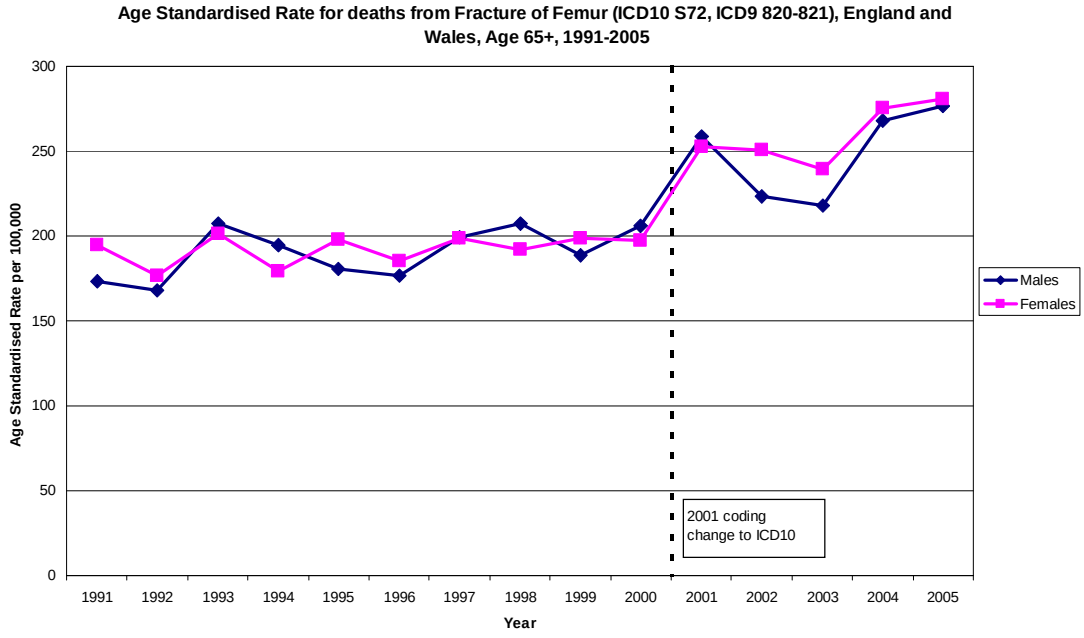


Figure 4.5: Deaths trend (Age 65+), England and Wales 1991-2005



Although one has to be careful of artefacts due to the coding change, age specific rates (5 year age bands) for all ages above 74 appear to be rising. In the 1960s and 70s the hospital admission rate was noted to be rising more markedly than could be accounted for by an ageing population (2) and this rise continued through to the mid 90s (3, 4) but now appears to be stabilising (5). Mortality within one year of a fracture neck of femur is said to be between 20-35% (6) with 5-10% dying in the first month. In the presence of co-morbidities such as respiratory or heart disease mortality is higher (7).

Patients who have suffered one fracture neck of femur are at greater risk of suffering a second fracture (8). Factors increasing risk are osteoporosis, malnutrition, low body weight, factors that increase the risk of a fall and smoking (9). It has been suggested that vitamin D supplements would be protective but this remains to be proven (10). Hip protectors have been claimed to offer some protection against fracture but patient compliance is poor and more recent studies suggest they are not effective (11).

So why are death rates for this fracture apparently higher in West Midlands than other regions? Regional differences are not accounted for by age differences since the figures are age standardised (but see comments on age standardisation later in this chapter). Is the high mortality due to a high incidence of the fracture or a high fatality rate or some other cause?

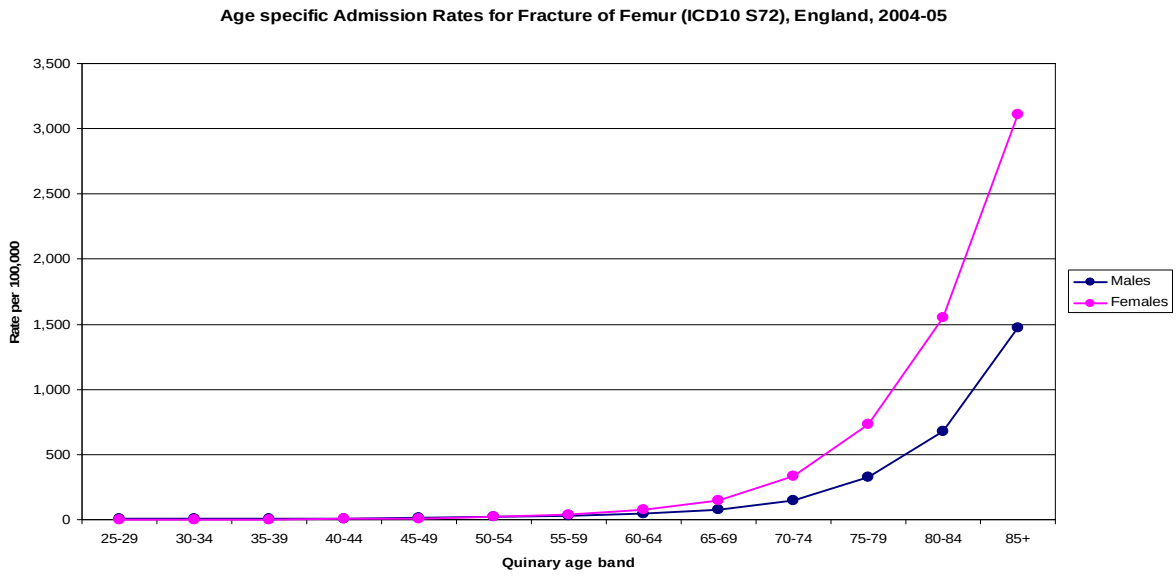
4.5 A note on Age Standardisation

The average age of the age group 85 years and over varies considerably between regions. The percentage of those in this age band who are aged 90 years or over is lowest in the North East region (50.7%), slightly higher in the West Midlands region (52.2%) and highest in the South East region (58.7%). When event rates rise very steeply with age differences within age bands may become important. Since age standardisation has been done using quinary age bands with a top band of 85 years and more it will not have entirely removed the effect of age.

4.6 Hospital Admission Rates

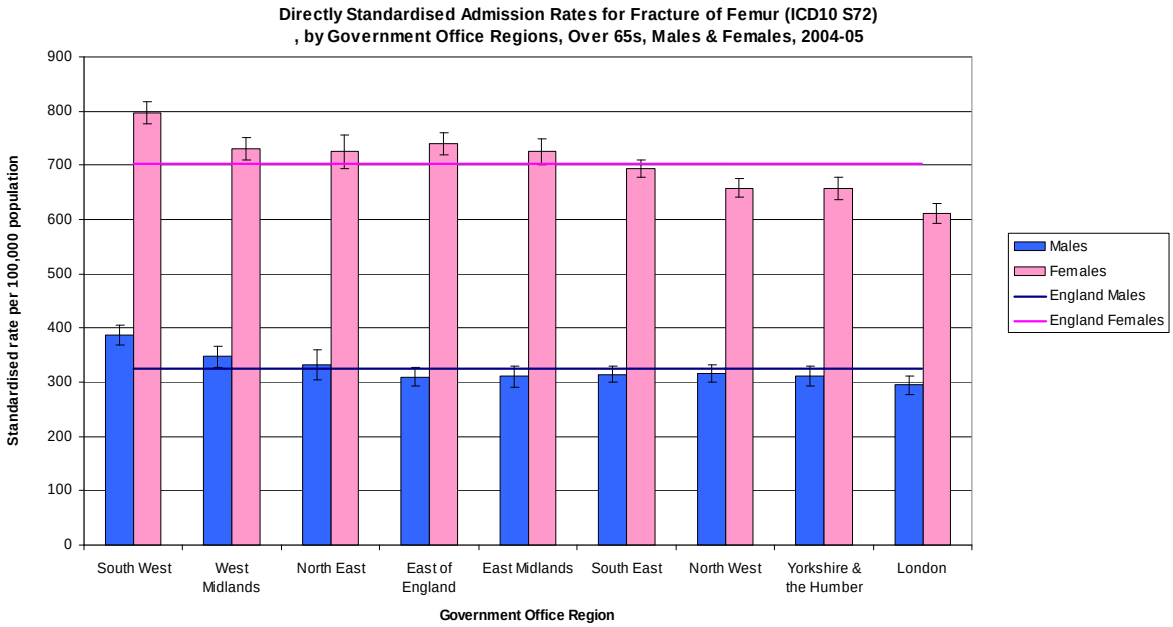
Since nearly all fractures are admitted to hospital, first hospital admission rates are a fair indicator of incidence. As with mortality, hospital admission rates rise steeply with age and are higher in females than males (Figure 4.6).

Figure 4.6: England admissions by quinary age bands, 2004-05



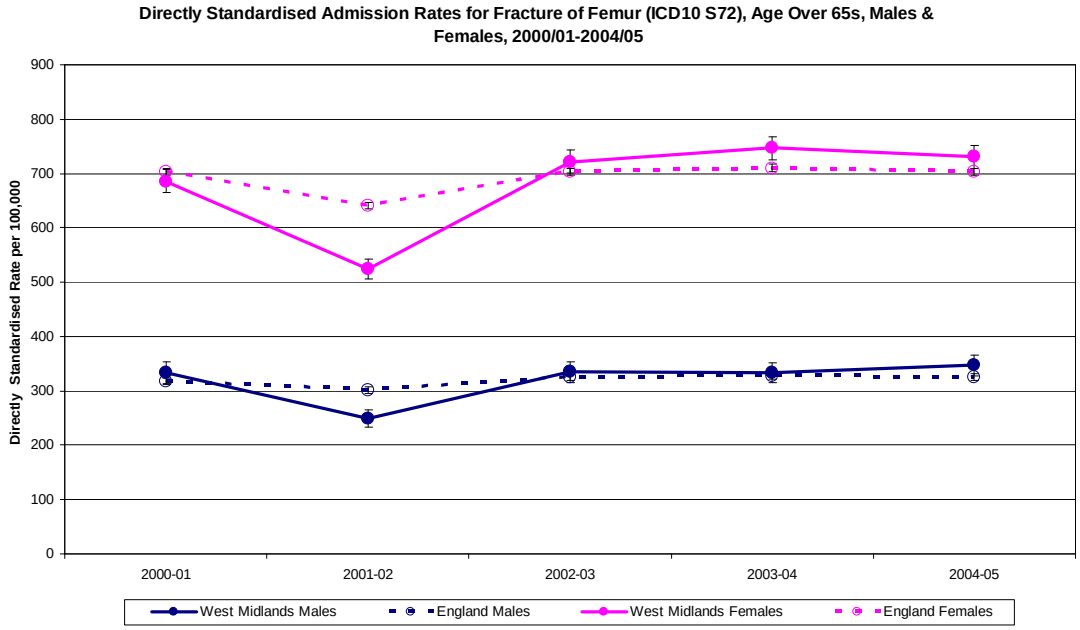
Hospital admission rates in the West Midlands are slightly (but significantly) higher than the England average but the regional difference is much less marked than for mortality the difference in admission rate between highest and lowest region being only about 30% (Figure 4.7). The rank order of regions for hospital admissions also differ considerably from that for mortality (Compare Figures 4.1 and 4.2 with 4.7). It thus seems unlikely that incidence of fracture neck of femur is unusually high in the West Midlands. A small number of people with fracture neck of femur die without being admitted to hospital but this is unlikely to affect the conclusion.

Figure 4.7: Regional comparison ages (Age 65+) admissions, 2004-05



Admission rates have hardly changed in recent years (Figure 4.8). The apparent fall in 2001/02 is likely to be an artefact. Comparison of Figures 4.4 and 4.6 also reveals a much greater difference between males and females for admission rate than for mortality and also for most age sex bands the ratio of deaths to admissions is 0.1 or less, far less than the 0.2 - 0.35 that would be expected from the reported death rate after fracture neck of femur.

Figure 4.8: Trends in hospital admissions (Age 65+), 2000-01 to 2004-05



4.7 Outcomes and Quality of Care

If higher incidence of fracture neck of femur does not explain the higher death rate one has to look at outcomes of hospital care. Risk of death is increased in the months after suffering a fracture neck of femur. Comparisons of the indirectly standardised death rates for deaths within 30 days of emergency admission for fracture neck of femur show the West Midlands to have the second highest but not significantly different from that for England (Figure 4.9).

Figure 4.9: Regional comparison, deaths within 30 days of admission, 2003-04

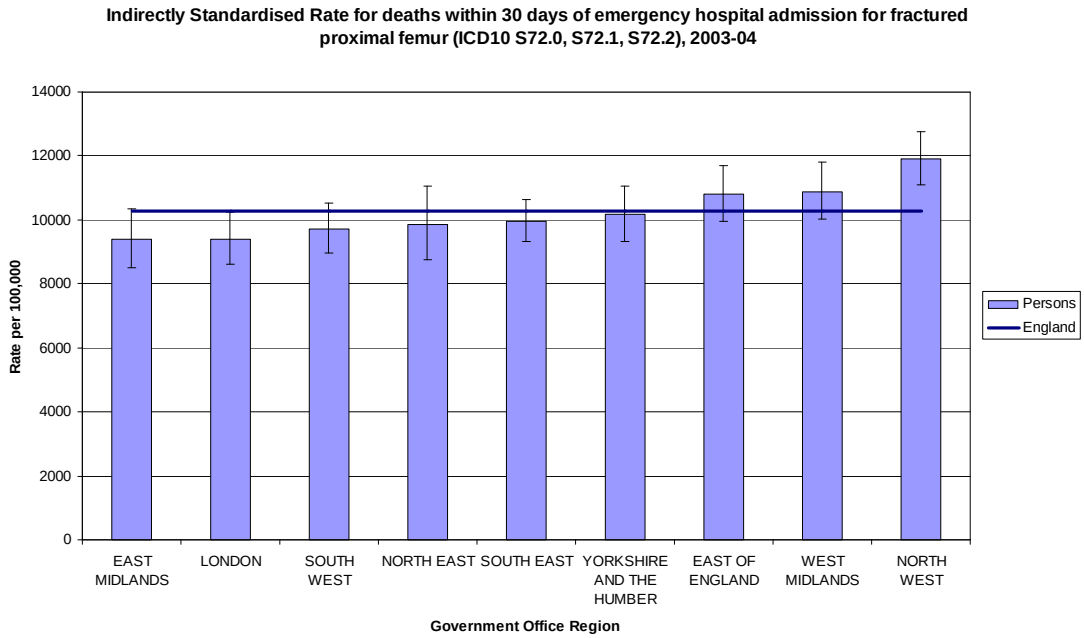
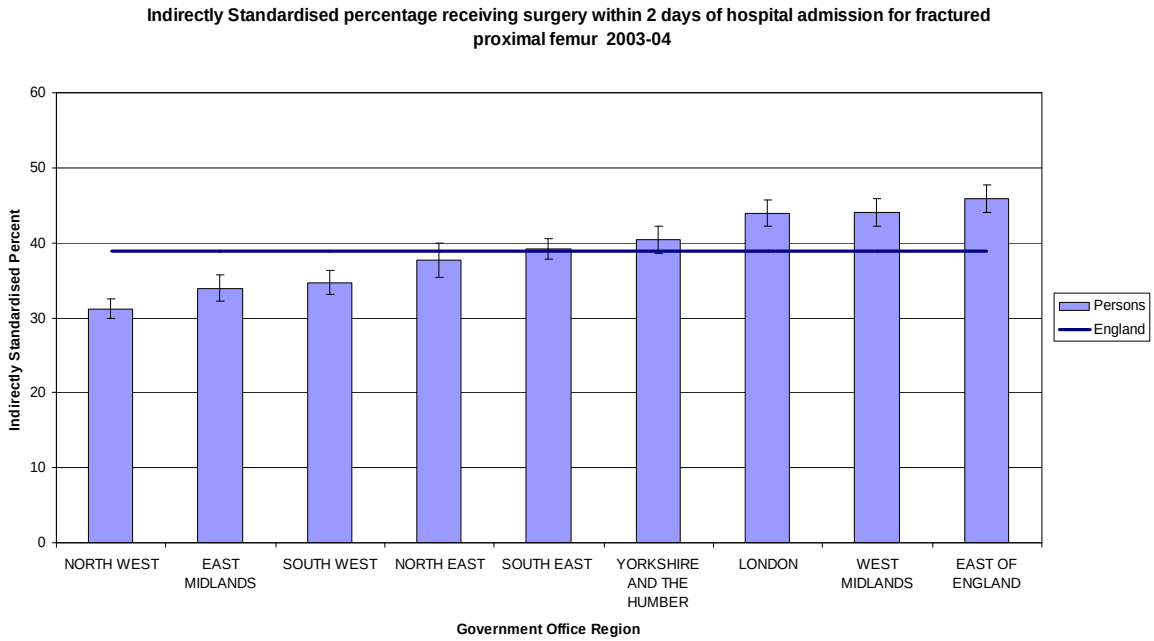


Figure 4.10: Regional comparison of timely surgery (within 48 hours), 2003-04



Speed of surgical intervention is probably associated with better outcome (12) The West Midlands has the second highest proportion of patients admitted with fracture neck of femur operated on within 48 hours and is significantly higher than the England average (Figure 4.10). The proportion in different regions operated on within first two days of admission ranges from 31% to 46%. Proportion of patients discharged to their usual residence is another indicator of quality of care for fracture neck of femur. For this indicator West Midlands has the lowest percentage discharged to usual residence with 41%, a figure significantly below the England average. However the range between regions (41% to 52%) is not large (Figure 4.11).

Figure 4.11: Regional comparison of discharged to usual residence, 2003-04

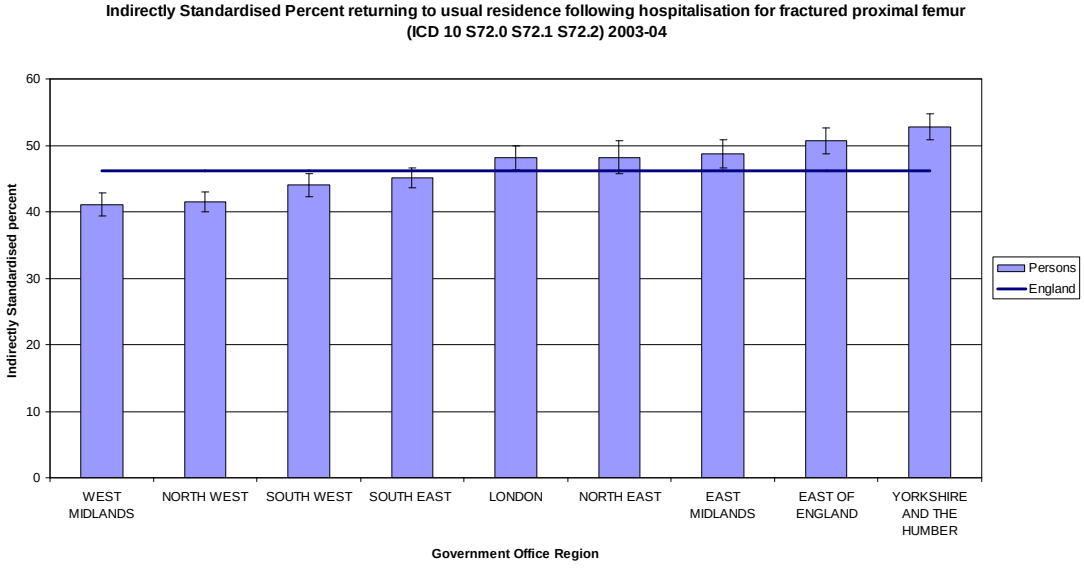
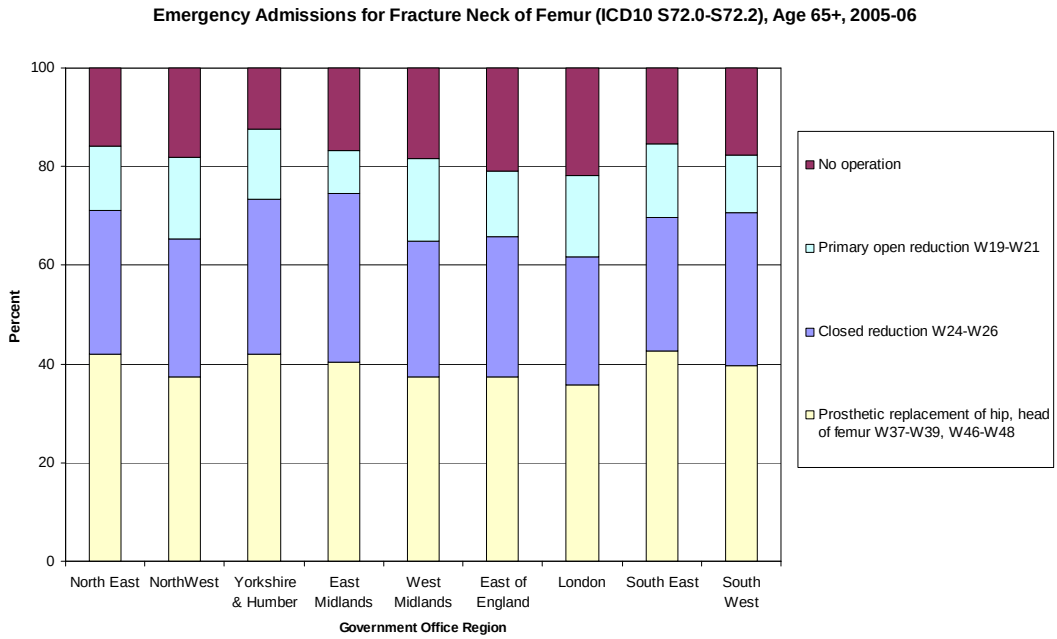


Figure 4.12: Regional comparison of operation type (Age 65+), 2005-06



The operative management of patients by open reduction, closed reduction, prosthetic replacement or no operative procedure are shown in Figure 4.12. While the West Midlands does more primary open reduction than other regions (16%) the differences in treatment patterns are not striking. There is thus no reason to think that care of fractured neck of femur in the West Midlands has worse outcomes or is of poorer quality than in other regions.

4.8 Explaining the High Mortality

It appears that neither a higher incidence of fracture neck of femur nor a higher 30 day post-admission fatality rate can explain the high rate of deaths ascribed to fractured neck of femur in the West Midlands, nor the other variations in regional death rates for this condition. One is therefore left with the probability that the difference, large though it is, is due to differences in death certification practice. In 1993 Goldacre showed that in those who died within 4 weeks of admission for a fractured neck of femur the fracture was only mentioned on 25% of the death certificates (13) and in many of these it did not appear as underlying cause. Other authors also noted that recording of fracture neck of femur on death certificates was very unreliable (14, 15). It is possible that some certifying doctors are hesitant to mention fracture neck of femur on a death certificate not wishing to involve the relatives in a coroner's enquiry (16). In order to pursue this investigation further it would be necessary to look at death rates at different time after fracture of neck of femur by linking hospital episode and death files. It is surprising that certification practice should differ so widely between regions but that appears to be the most likely explanation for the very high death rates of fracture neck of femur in the West Midlands.

The data specification for mortality from fracture neck of femur, which accompanies the Clinical and Health Outcomes Knowledge Base (NCHOD)

from which most of the data in this chapter were taken warns “cause data for fracture should be used with great care because of the effects of artefactual Local differences resulting from variations in certification procedures between coroners. Deaths caused by fracture femur are also under-recorded because there are a number of alternatives for classifying such deaths. For these reasons, variations between areas should be interpreted with caution”. This chapter demonstrates how true this is.

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CHAPTER FIVE: INFLUENZA SURVEILLANCE

5.1 Introduction

Influenza is a viral illness characterised by headache, fever, cough, sore throat and aching muscles. Although unpleasant it is usually a self-limiting illness with recovery in 2-7 days. Complications can occur as a result of influenza infection including otitis media, bronchitis and pneumonia. The young and old are particularly vulnerable to influenza in whom the condition may cause death as a result of the complications. The virus that causes influenza was first identified in 1933. There are three types of influenza virus: A, B and C. Type A normally causes a more serious illness than types B and C. There are three categories of influenza for surveillance purposes: seasonal, pandemic and avian influenza (1, 6). This chapter is going to describe some of the surveillance systems used to monitor seasonal influenza at local, regional, national and international levels and present some of the recent seasonal surveillance information.

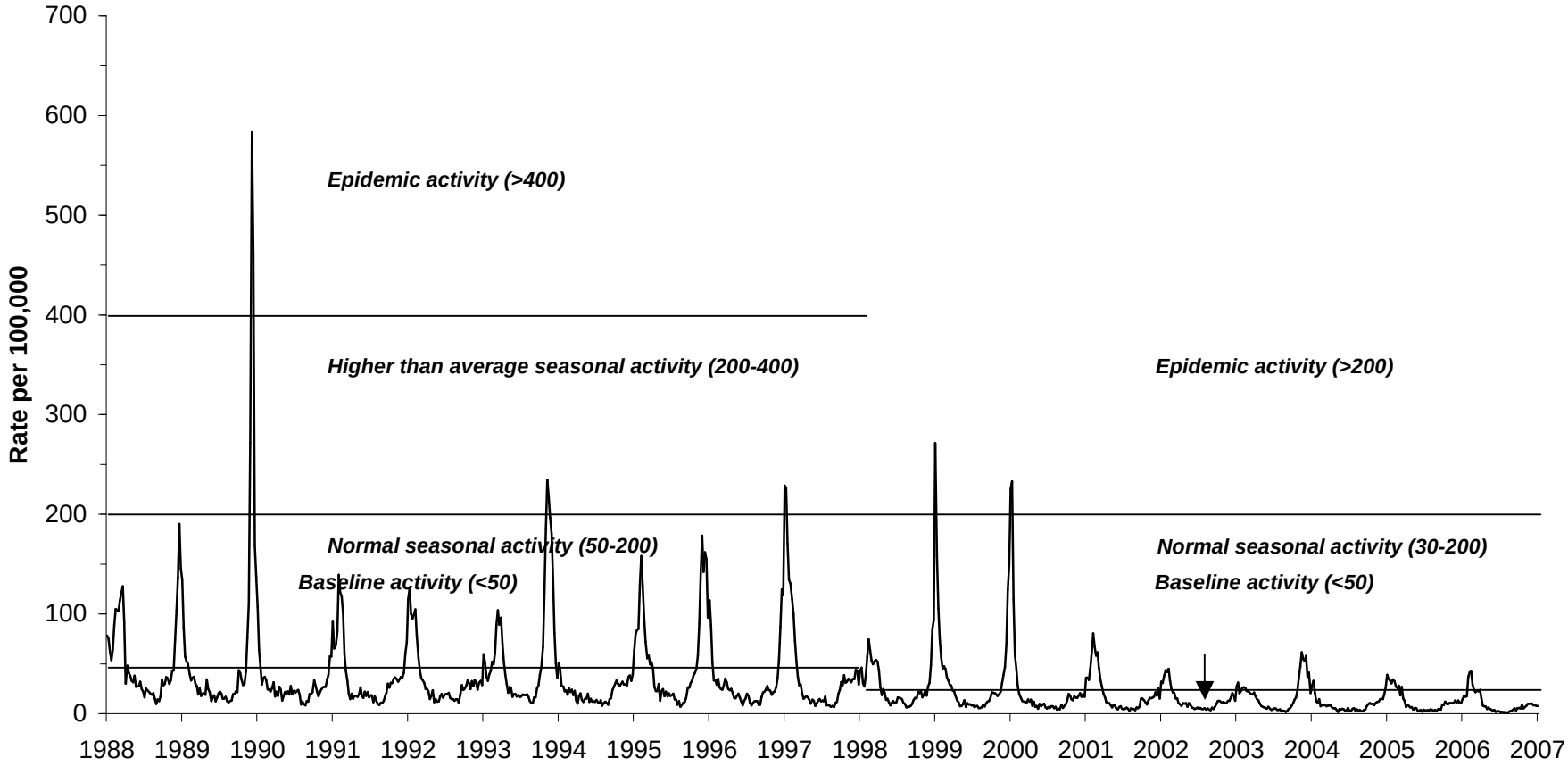
5.2 Seasonal Influenza

Seasonal influenza usually occurs between December and March in the United Kingdom. There are a number of different surveillance systems that give us information regarding seasonal influenza via syndromic surveillance: Royal College of General Practitioners spotter practices, QFLU, NHS Direct and Medical Officers for Schools Association. Syndromic surveillance is based upon symptoms and not upon confirmed diagnoses. Other surveillance information can be obtained from the uptake of influenza vaccine and laboratory reporting of isolates obtained from specimens taken from infected individuals. Weekly summaries of influenza surveillance are produced by the Health Protection Agency during the seasonal influenza season at national and regional levels. Seasonal influenza surveillance also occurs in Europe through the European Influenza Surveillance Scheme (5), and internationally coordinated by the World Health Organisation (17). Some of the British based schemes will now be discussed in more detail.

5.3 Royal College of General Practitioners

The Royal College of General Practitioners sentinel surveillance system was established in 1957. It now consists of approximately 100 GP practices spread across England and Wales who submit data to the Research Unit located in Birmingham, established in 1964, through the Weekly Returns Service. Patient information is anonymised and based upon well recognised Read codes. The baseline threshold rate, currently 30 per 100 000 persons, is based upon the weekly consultation rate for new episodes of influenza and influenza like illness. The National Institute for Health and Clinical Excellence (NICE) utilise this baseline in their guidance surrounding the usage of antivirals for the treatment of influenza (11). The advantage of this system is that many years of historical data is available for analysis and comparisons. Information about other conditions is also collected to provide valuable insight into health trends in Primary Care.

Figure 5.1: RCGP data consultation rates for influenza like illness per 100 000 from 1968-2007



5.4 QFLU

This is a surveillance system based upon General Practitioners EMIS computer systems (the main supplier of GP computer systems in the England). It was developed by EMIS and Nottingham University. QFLU covers approximately 3,300 GP practices and a population of 25.5 million, although this figure varies on a weekly basis due to differing levels of practice participation. It is the largest surveillance system of its type in Europe. Data upon consultations for influenza like illness are automatically extracted from participating practices on a weekly basis and collated by Nottingham University. This information is sent to West Midlands Regional Surveillance Unit where analysis takes place and consultation rates for influenza like illness are calculated for the region. The advantage of Q-Flu is that it covers a large population and rates can be calculated down to a PCT level and prescribing data e.g. use of antivirals can be described. During a pandemic the QFLU system has the capacity to report daily consultation rates.

Table 5.1: Number of GP practices participating in QFLU in the West Midlands.

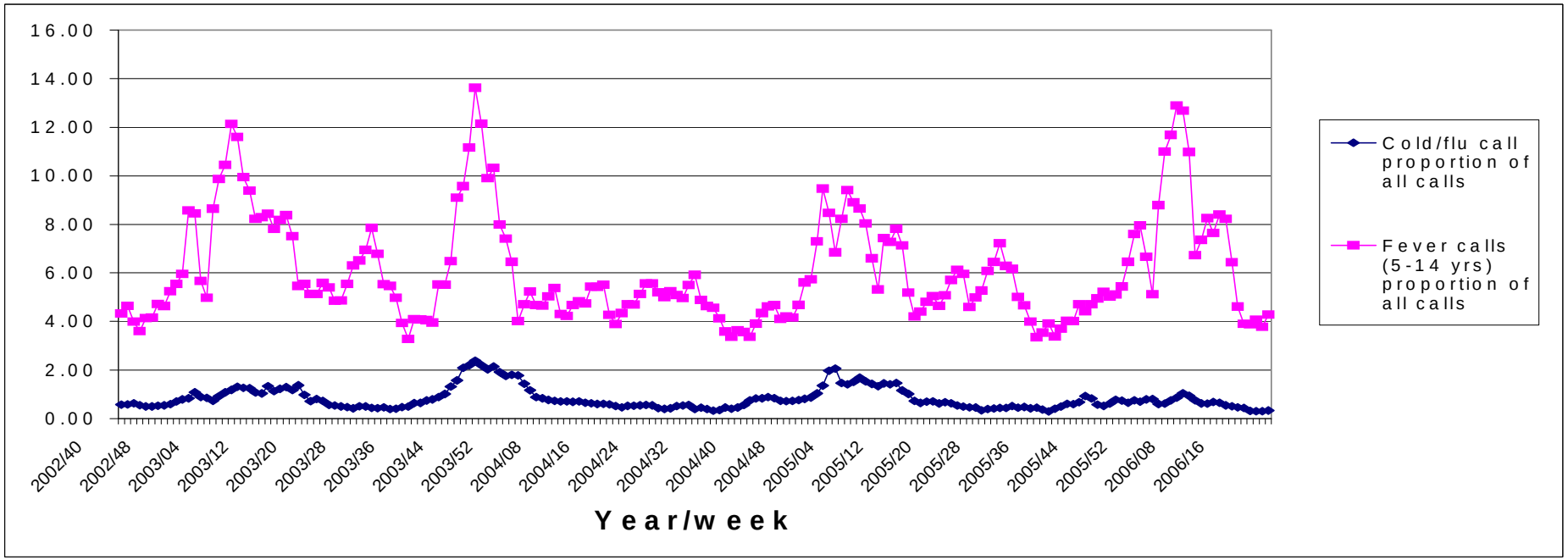
PCT Name	PCT code	Number of practices participating in QFLU
Burton, Lichfield & Tamworth	5DQ	9
Cannock Chase	5MM	4
Coventry	5MD	30
Dudley Beacon & Castle	5HV	7
Dudley South	5HT	14
East Staffordshire	5ML	4
Eastern Birmingham	5MY	8
Heart of Birmingham	5MX	36
Herefordshire	5CN	12
Newcastle Under Lyme	5HW	9
North Birmingham	5MW	11
North Stoke	5ME	15
North Warwickshire	5MP	8
Oldbury & Smethwick	5MG	6
Redditch & Bromsgrove	5MR	4
Rowley Regis & Tipton	5MH	3
Rugby	5M9	<3
Shropshire County	5M2	35
Solihull	5D1	21
South Birmingham	5M1	21
South Stoke	5MF	26
South Warwickshire	5MQ	12
South Western Staffordshire	5MN	4
South Worcestershire	5MT	5
Staffordshire Moorlands	5HR	12
Telford & Wrekin	5MK	19
Walsall	5M3	22
Wednesday & West Bromwich	5MJ	5
Wolverhampton City	5MV	9
Wyre Forrest	5DR	<3
Total West Midlands		371

Note: PCTs based upon pre-2006 PCT boundaries
Source: Q-Research

5.5 NHS Direct

NHS Direct is a 24-hour nurse-led telephone service that covers England and Wales, established in 1997. It answers half a million calls per month (9). It has evolved to provide e-health information via the Internet and a digital interactive TV service. The telephone service utilises algorithms from clinical decision support systems so that symptom-based advice can be given to the callers. The information from the telephone call centres flows to the National Operations Centre in West Yorkshire and from there to the West Midlands Regional Surveillance Unit where analysis is undertaken of the syndromic surveillance data. From these data the proportion of calls concerning influenza like illnesses and fever can be analysed by different age groups. Seasonal thresholds have been developed based upon the proportion of all calls relating to influenza like illness and fever (see Figure 5.2).

Figure 5.2: Proportion of NHS Direct calls (expressed as a percentage) for cold/flu and fever (5-14 years)



5.6 Medical Officers of Schools Association (MOSA)

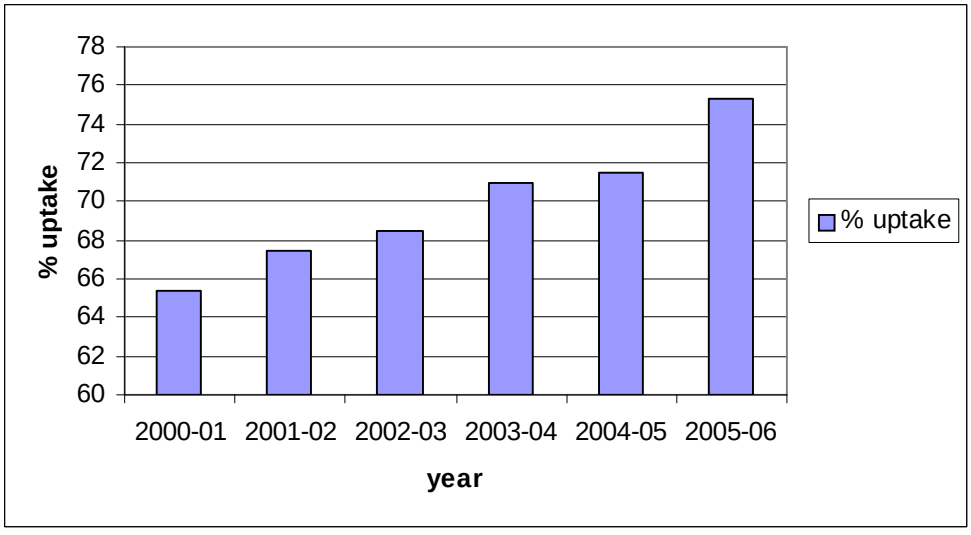
This association was founded in 1884 in response to, "The need for the general adoption of more definite rules for guarding our great educational establishments from the outbreak and spread of preventable infectious disease".

There are currently approximately 400 members of the MOSA; the majority are General Practitioners who are Medical Officers for Independent Schools including boarding schools. The number of schools participating in the scheme to report influenza like illness to the HPA varies weekly, it is usually between 15-25 schools and no data is collected during school holidays.

5.7 Vaccine Uptake

Seasonal influenza vaccines in the England are offered to all those over 65 years of age or individuals living in care homes. Additionally, individuals of any age with chronic conditions are offered the vaccine: heart, lung and renal diseases, cancer or those with lowered immunity.

Figure 5.3: Influenza vaccine uptake in individuals 65 years and older since 2000



5.8 Avian Influenza

Avian influenza was first recognised in Italy in 1878. It often causes no disease in wild birds but can cause high mortality in commercial poultry. When large numbers of birds die as a result of an influenza virus it is termed as, ‘highly pathogenic avian influenza’. Avian influenza is currently, at the time of writing this chapter, a disease of birds (2). There is concern that the virus may mutate or combine with a seasonal influenza virus and become more transmissible to humans and under these conditions a pandemic may occur. This is why poultry workers in the UK are being offered seasonal influenza vaccines (4).

The current outbreak of Avian Influenza (H5N1) started in mid-2003 in South East Asia. The World Health Organisation are organising and coordinating the global response to avian influenza. It is estimated that 150 million birds have now died globally as a result of H5N1 infection; this is the most severe outbreak in birds ever to have been recorded (2). Transmission to humans is still rare. There have been 315 human cases of H5N1 influenza and of these 191 individuals have died at the time of writing (16).

Table 5.2: List of countries reporting human H5N1 cases

	2003	2003	2004	2004	2005	2005	2006	2006	2007	2007	Total	
Country	**Cases**	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**	**Cases**	**Deaths**
Azerbaijan	0	0	0	0	0	0	8	5	0	0	8	5
Cambodia	0	0	0	0	4	4	2	2	1	1	7	7
China	1	1	0	0	8	5	13	8	3	2	25	16
Djibouti	0	0	0	0	0	0	1	0	0	0	1	0
Egypt	0	0	0	0	0	0	18	10	19	5	37	15
Indonesia	0	0	0	0	19	12	56	46	26	22	101	80
Iraq	0	0	0	0	0	0	3	2	0	0	3	2
Lao People's Democratic Republic	0	0	0	0	0	0	0	0	2	2	2	2
Nigeria	0	0	0	0	0	0	0	0	1	1	1	1
Thailand	0	0	17	12	5	2	3	3	0	0	25	17
Turkey	0	0	0	0	0	0	12	4	0	0	12	4
Viet Nam	3	3	29	20	61	19	0	0	2	0	93	42
Total	**4**	**4**	**46**	**32**	**97**	**42**	**116**	**80**	**54**	**33**	**315**	**191**

The HPA has developed algorithms for suspected human cases of avian influenza in the UK. A database is being developed and tested to allow surveillance information to be obtained should cases occur in the UK (7).

To complement surveillance in humans there is surveillance of birds. Animal Health in England carries out an on-going sampling of wild birds to test for H5N1 influenza in England and Wales. There are three components to this surveillance: sampling of live caught wild birds, sampling of wild birds shoot during normal wildfowling activities and screening of wild birds found dead (15).

5.9 Pandemic Influenza

The influenza virus is antigenically unstable. There are two types of glycoprotein on the surface of influenza A viruses; haemagglutinin and neuraminidase. These surface proteins are often changing slightly, due to the instability, and this is called antigenic drift. When a major change in the surface proteins occurs and a new virus emerges this is called antigenic shift (1). New viruses have the potential to cause a pandemic, as opposed to minor changes that result in seasonal influenza. The conditions required for a pandemic to occur are that there has to have been the development of a new influenza virus with antigenic shift of the surface proteins of the virus, rapid person to person spread in a population leading to large numbers of the population being ill because they have little immunity to the new virus. Pandemics can occur at any time of year i.e. they are not limited to the winter months. New influenza virus strains are classified according to the year and the place where they were identified, for example, Spanish ‘flu 1918, Asian ‘flu 1957 and Hong Kong ‘flu 1968/69.

Planning work is being undertaken at regional and national levels to address the surveillance needs that will be required during a pandemic building upon the current seasonal surveillance systems. For some information needs new surveillance systems will have to be developed. The Department of Health are coordinating this in conjunction with many other agencies at a national level as part of the Pandemic Preparedness Program (3).

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CHAPTER SIX: LEGIONNAIRES' DISEASE

6.1 Background

Legionnaires' disease was first identified in 1976 in Philadelphia, USA, amongst individuals attending a state convention of the American Legion, which led to the naming of the condition. One hundred and eighty members of the convention developed a severe pneumonia and twenty-nine people died (1). The first major outbreak recorded in the UK occurred in Staffordshire associated with the District General Hospital in 1985. One hundred and one people were affected and 28 individuals died (9). The largest single outbreak reported in the UK was in Barrow-in-Furness, where 172 people were affected and 7 people died.

The bacterium that causes Legionnaires' disease, *Legionella pneumophila* can cause a severe pneumonia with death occurring in 10-15% of cases. A milder form of the disease may occur without the pneumonia, named Pontiac Fever, with symptoms like a mild influenza illness. It usually takes between 2-10 days for the disease to develop. The disease can be treated with antibiotics (6).

The bacterium lives naturally in warm water (32-45°C), for example in: hot and cold water systems, fountains, spas, the water in air-conditioning units and cooling towers. Individuals contract the disease by breathing in aerosols from a contaminated source and not by person to person spread (2). Prevention is through good maintenance of water systems, in particular air-conditioning and hot water systems.

6.2 Surveillance

Legionella pneumophila can be detected through blood or urine tests. Legionnaires' disease is not a statutory notifiable disease in the UK. Initial information about cases is obtained from clinicians treating suspected cases or through laboratory confirmed reports and given to local Health Protection Units. Individuals are then followed up by case questionnaires to obtain information on their occupation, daily movements and any significant travel away from home during the incubation period. This will aid identification of common exposures and potential environmental sources. Implicated sources are then decontaminated. This can involve investigations by the Health and Safety Executive. In the USA Legionnaires' Disease is a notifiable disease in the majority of states but because of under diagnosis and under reporting Centre for Disease Control are then and Prevention (USA) estimate only 2-10% of cases are actually reported (3)

As well as surveillance occurring in England by the Health Protection Agency (HPA) there is a European wide surveillance system. The European Working Group for Legionella Infections (EWGI) was established in 1986 and is currently hosted at the Centre for Infections (HPA) in Colindale, London. The aims of this group are to improve the knowledge and information surrounding the disease (5). This network has enabled rapid communication of suspected

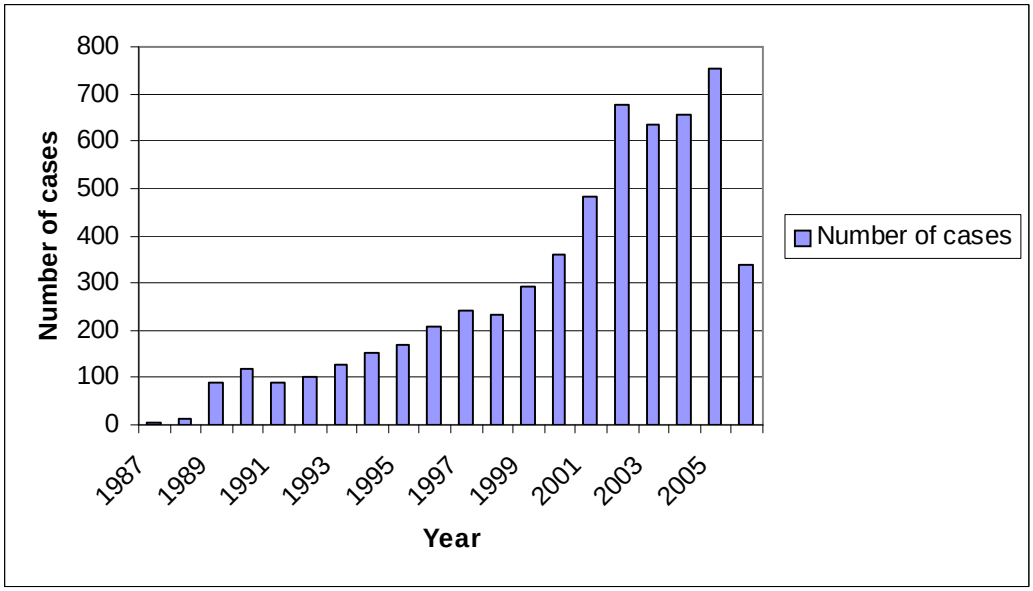
clusters so that coordinated responses can be planned and implemented, but despite this, outbreaks are often difficult to control (8).

Epidemiological Surveillance Data

6.3 Temporal Trends

The number of reported cases of Legionnaires' disease has been increasing over the last two decades in Europe and England and Wales. This could be due to a real increase in cases however; it may also be due to improved diagnosis and testing with the advent of urinary testing and better reporting to the surveillance systems. Outbreaks cause considerable media interest but the majority of the cases in the UK are sporadic with no links between individuals determined and no source identified.

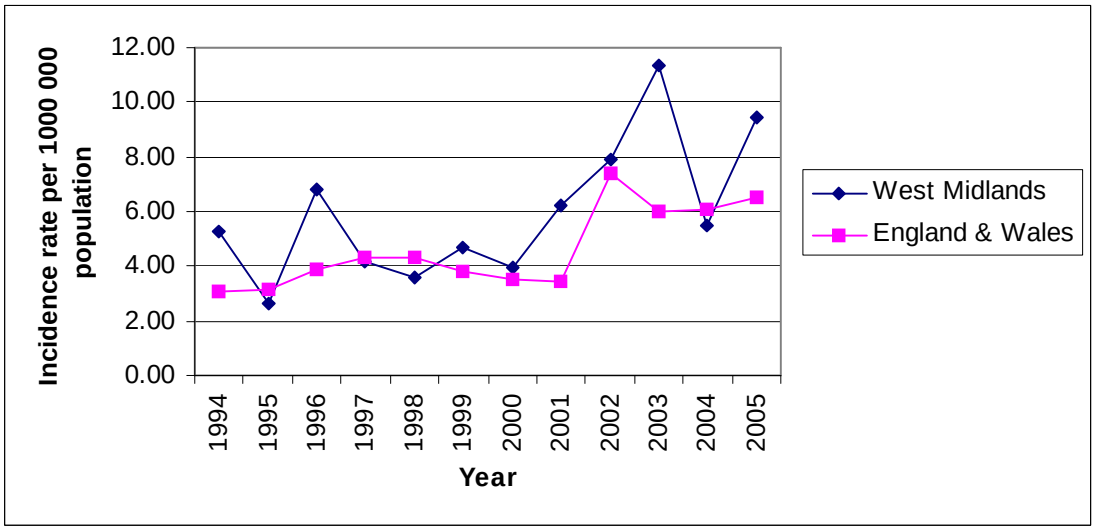
Figure 6.1: Number of cases of Legionnaires' disease occurring in Europe reported to EWGLI from 1987- August 2006.



Source: EWGLI

The number of cases in the West Midlands has increased from 28 reported cases in 1994 to 50 in 2005, incidence rates of 5.3 and 9.4 per million respectively (8).

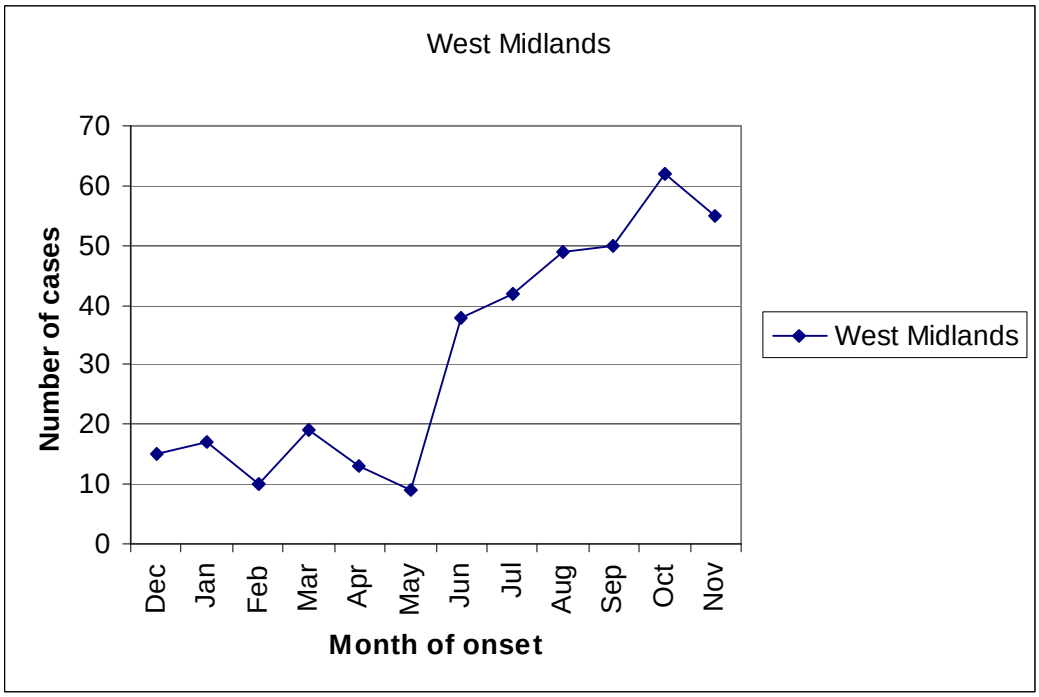
Figure 6.2: Incidence rate (per million) of Legionnaires' disease in England and Wales compared to the West Midlands



Source: West Midlands Regional Surveillance Unit

Seasonal trends are observed with a peak usually occurring in late summer and early autumn.

Figure 6.3: Reported cases of Legionnaires' disease in residents of the West Midlands, Cases by Month of Onset 1994-2005

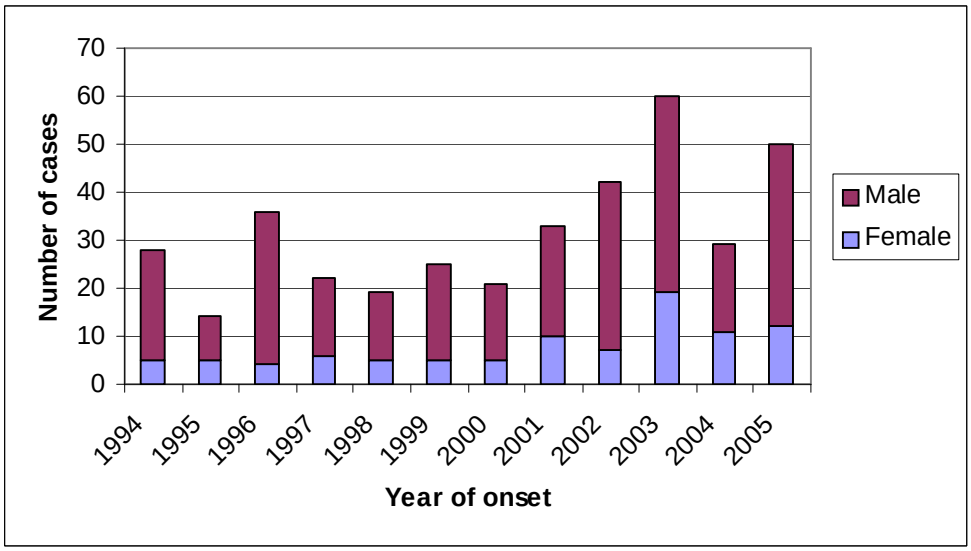


Source: West Midlands Regional Surveillance Unit

6.4 Case Demographic Trends

Legionnaires' Disease is more common in males than females across all age-groups and primarily affects males in the 50-59 year age group. It is very rare in those under 20 years of age. The disease is more common in patients who smoke and those who have weakened immune systems and chronic lung and renal diseases.

Figure 6.4: Legionnaires' disease in Residents of the West Midlands by Gender, 1994-2005



Source: West Midlands Regional Surveillance Unit

Occupation was only available for 297 case of Legionnaires disease in residents of the West Midlands. These are shown in Table 6.1.

Table 6.1: Occupation of patients with reported cases of Legionnaires' disease in residents from the West Midlands 1994-2005

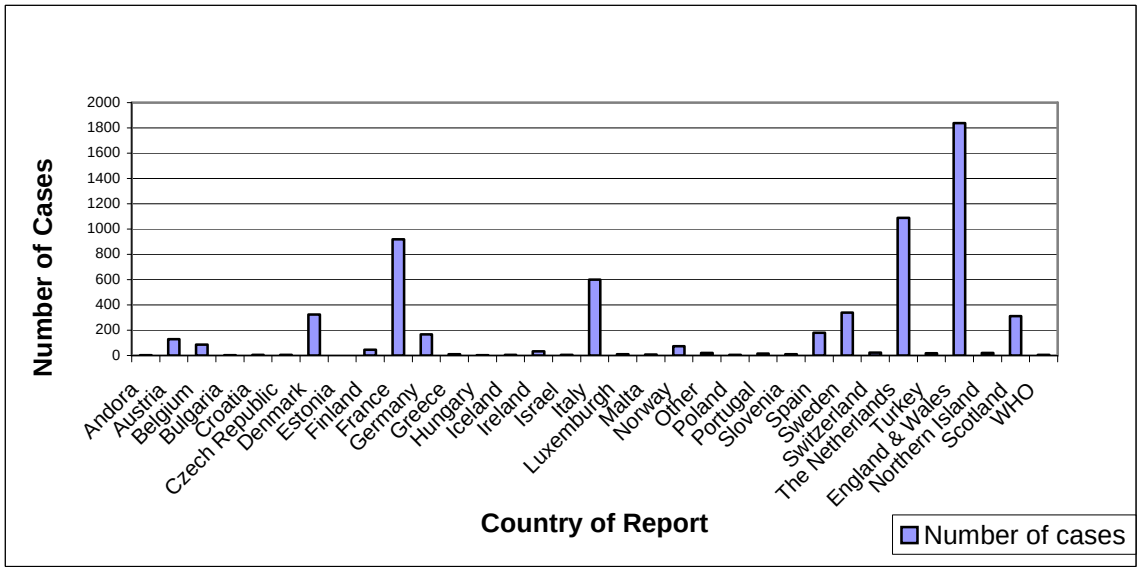
Occupation	Number	Percent (%)
Retired	93	31.3
Manual factory/foundry work	39	13.1
Engineering/welding	27	9.1
Driver incl. PSV or HGV	26	8.8
Other professional	17	5.7
Manager/supervisor	16	5.4
Unemployed	16	5.4
Other	15	5.1
Housewife	12	4
Builder/carpenter/decorator/gardener	8	2.7
Cleaner	8	2.7
Fitter/plumber	6	2
Clerical	5	1.7
Salesman	4	1.3
Warehousing	3	1
Catering	2	0.7
Total	297	

Source: West Midlands Regional Surveillance Unit

6.5 Geographical Trends

European surveillance data is available through EWGLI and identifies the country where the report of Legionnaires' disease originates.

Figure 6.5: Number of cases by country of report in Europe from 1987-2007



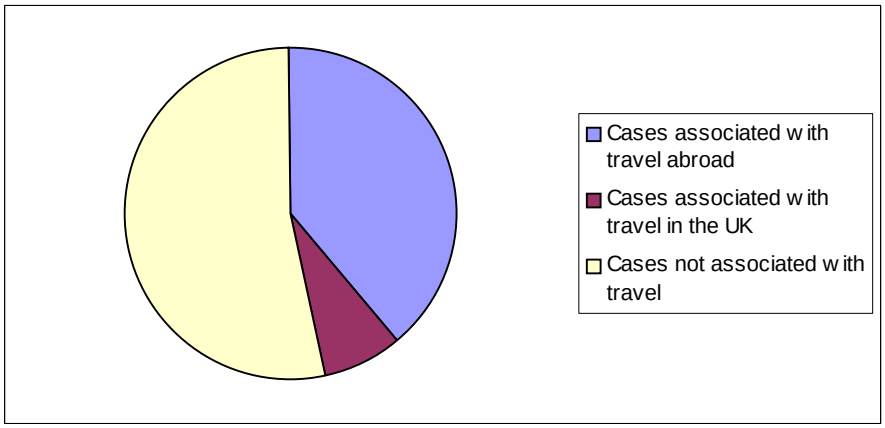
Source EWGLI

It appears in Figure 6.5 that England and Wales have the highest number of cases of Legionnaires' disease in Europe. This data must be interpreted with caution. Other countries may have very inaccurate and incomplete reporting systems and the numbers reflect the country where the report originates and not necessarily the country of source of disease i.e. does not differentiate travel associated sources from case that contracted the condition in England and Wales. Nearly half of the cases reported in England and Wales are thought to be contracted abroad, Figure 6.6.

Cases may be categorised into: community acquired, hospital acquired or travel associated. The majority of cases are thought to be sporadic although well-documented clusters have occurred in the UK in recent years, for example; Herefordshire and Barrow-in-Furness.

Nearly half (47.2%) of the cases occurring in residents from the West Midlands between 1994 and 2005 were associated with travel. Of these cases associated with travel the minority was travel within the UK (15.6%) but the majority abroad (84.4%).

Figure 6.6: The association between travel and reported cases of Legionnaires' disease from Residents of the West Midlands 1994-2005



Source: West Midlands Regional Surveillance Unit

The geographical spread of cases of Legionnaires' disease in residents from the West Midlands is depicted in Table 6.2 showing the distribution by Health Protection Unit (HPU) of residence. It must be noted that the HPU of residence may not correspond to where the individual may have contracted the disease. The peak in Herefordshire in 2003 corresponds to a large single outbreak in that year (RSU).

Table 6.2: Health Protection Unit of residence of patients with reported cases of Legionnaires' disease in the West Midlands 1994-2005.

Year	Birmingham & Solihull	Black Country	Coventry and Warwickshire	Herefordshire & Worcestershire	Shropshire & Staffordshire	Total
1994	12	7	2		3	24
1995	4	3		2	3	12
1996	5	13	7	1	3	29
1997	10	4			5	19
1998	7	3	1	2	2	15
1999	3	4	1	3	9	20
2000	7	7	2	1	3	20
2001	16	4	5	1	6	32
2002	8	14	3	2	10	37
2003	18	7	3	24	5	57
2004	12	8		3	6	29
2005	12	15	4	2	17	50
Total	114	89	28	41	72	344

Source: West Midlands Regional Surveillance Unit

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CHAPTER SEVEN: CHILDHOOD OBESITY MONITORING AND PREVENTION RESEARCH

7.1 Introduction

The West Midlands Key Health Data 2005/06 (1) included a chapter on childhood obesity focussing on the causes of obesity and issues surrounding the use of Body Mass Index as an indicator of obesity in children. This chapter continues to explore and expand on the theme by presenting up to date regional data based on recent schools-based obesity monitoring and outlining a Birmingham based prevention research study.

7.2 Monitoring Obesity in School Children: Findings from the 2006 Data Collection from West Midlands PCTs

School-based Monitoring

In July 2004 the Government responded to the challenge of childhood obesity by developing a public service agreement (PSA) target "to halt the year on year rise in obesity among children aged under 11 by 2010". In November 2004 the White Paper "Choosing Health" (2) charged the Department of Health and the Department for Education and Skills with developing appropriate systems for recording lifestyle measures among school age children. In order to be able to monitor trends in childhood obesity, and track progress towards this target, we need high quality, up to date information on children's height and weight. In 2006 the Department of Health directed all Primary Care Trusts (PCTs) to introduce routine annual height and weight monitoring for primary school children. Guidance issued prior to the implementation of monitoring stated that the purpose of gathering height and weight data is to enable population monitoring and not to screen individual children or initiate any intervention for individuals (3). Children in Reception year (aged 4 or 5) and Year 6 (aged 10 or 11) are included in the process. The first round of monitoring took place in the summer term of 2006. At it's outset this process was termed "Childhood Obesity Monitoring" but has recently been renamed the "National Child Measurement Programme".

Defining Childhood Obesity for Schools-based Monitoring

In adults the Body Mass Index (BMI) is used to identify whether someone is underweight, normal weight, overweight or obese. The BMI is calculated using a person's height and weight (kg/m^2). For an adult, a BMI of 18 - 24.9 is considered normal, 25 to 29.9 overweight and 30 or more as obese. However, for children the BMI is harder to interpret because they are still growing. In 1990 a database of information about a large sample of UK children was constructed including height, weight, age and sex. The BMI for each child was calculated. Children in this dataset with a BMI in the top 5% for their age and sex were considered obese and this 5% percentile sets the cut-off point against which children's BMIs are compared for epidemiological purposes. A BMI which falls above that 95% cut-off point (i.e. is in the top 5%) is indicative of obesity. Although obesity is the focus of the PSA target, monitoring the

prevalence of overweight in children is also important. Children in the 1990 dataset with a BMI between the 85th and 95th percentile were considered overweight. In the 2006 monitoring process, children with a BMI above the 85th 1990 percentile and below the 95th percentile were identified as overweight.

The 2006 Monitoring Process

Organising the 2006 monitoring process presented a considerable challenge to PCTs due largely to the short time available in which to complete the data collection. Local monitoring arrangements differed between PCTs, but the same underlying principles applied. In most cases, all Local Authority primary schools were invited to participate. Schools could opt out of the process if they wished, although this was generally rare in the West Midlands. Parents and children could also opt not to participate. Clearly the process of measuring children must be handled sensitively. In the majority of cases, the height and weight monitoring was carried out by School Nurses on school premises although a number of other staff were involved. The data collected in schools was collated by the relevant PCT before being uploaded onto the National Childhood Obesity Database (NCOD). The national database assigned a BMI to each child, which allowed children to be categorised as normal weight, overweight or obese. NCOD is a secure restricted-access database, which allows PCTs to download summaries of the results of the monitoring. These summaries do not contain any identifying details or results for individual children, but provide the proportions of obese and overweight children according to a range of factors including school year and sex. It should be noted that, subsequent to the analysis of the data from the first year of monitoring, improvements have been made to data collection processes including changes to the national database and to guidance provided to assist PCTs with data collection.

Reorganisation of West Midlands PCTs

Prior to October 2006 there were 30 PCTs in the West Midlands, and it was these organisations that organised and carried out the 2006 monitoring. In October 2006 an NHS reorganisation meant that a number of PCTs merged to create a total of 17 PCTs across the region. Although monitoring data were obtained according to the former PCT areas, in order to facilitate the use of the data in the context of current organisational structures, data have been collated to provide figures for the current PCTs.

Data Completeness and Caution in Interpreting Data

Achieving adequate levels of data completeness is essential if reliable figures are to be obtained. Tables 7.1 and 7.2 describe the completeness of data for Reception and Year 6 children in West Midlands PCTs. One PCT did not undertake monitoring of Reception Year children and 5 PCTs did not undertake monitoring in Year 6.

Data completeness was calculated based on the number of children identified as eligible for monitoring submitted to NCOD. Where data were available the levels of completeness vary widely from 16.2% to 88.1% for Reception Year (average 73.9%), and from 3.8% to 90.1% in Year 6 (average 56%). Children may not have been measured because their school, parents or they themselves opted out, they were absent on the day of measuring, or if measurement could not be carried out for another reason. There is anecdotal evidence that overweight or obese children are less likely to participate in the monitoring than those at a normal weight (4). It is not possible to distinguish the different causes for not being measured from the available data.

Given the variation in completeness, the low levels of completeness achieved by a number of PCTs, and the possible participation bias, rates of obesity and overweight calculated from the figures must be viewed with caution.

This cautious approach is recommended in a national analysis of 2005-06 childhood obesity data (4). At national level, obesity data were available for 57% of eligible Reception year pupils and for 42% of Year 6 pupils, with wide variation between Strategic Health Authorities and PCTs.

Table 7.1: 2006 Childhood obesity Monitoring data for West Midlands PCTs Children Measured and Data Completeness: Reception Year

PCT (from October 2006)	Reception Year Children		
	Children Measured	Eligible Children	Data Completeness (%)
Birmingham East & North	3416	4102	83.3
Coventry Teaching	No data available		
Dudley	1582	3501	45.2
Heart Of Birmingham Teaching	3849	4726	81.4
Herefordshire	1368	1575	86.9
North Staffordshire	1509	1785	84.5
Sandwell	1963	3439	57.1
Shropshire County	1246	2553	48.8
Solihull	1873	2354	79.6
South Birmingham	2656	3016	88.1
South Staffordshire	5099	6152	82.9
Stoke on Trent	1904	2752	69.2
Telford And Wrekin	918	1730	53.1
Walsall Teaching	187	1153	16.2
Warwickshire	4681	5467	85.6
Wolverhampton City	1731	2386	72.5
Worcestershire	4673	5628	83
West Midlands	**38655**	**52319**	**73.9**

Source: National Childhood Obesity Database, 2006

Table 7.2: 2006 Childhood Obesity Monitoring data for West Midlands PCTs Children Measured and Data Completeness: Year 6

PCT (from October 2006)	Year 6 Children		
	Children Measured	Eligible Children	Data Completeness (%)
Birmingham East & North	No data available		
Coventry Teaching	3022	3491	86.6
Dudley	956	3883	24.6
Heart Of Birmingham Teaching	3777	4192	90.1
Herefordshire	1417	1767	80.2
North Staffordshire	No data available		
Sandwell	80	3622	2.2
Shropshire County	2740	3212	85.3
Solihull	No data available		
South Birmingham	No data available		
South Staffordshire	4996	6742	74.1
Stoke on Trent	No data available		
Telford And Wrekin	1572	1980	79.4
Walsall Teaching	191	1238	15.4
Warwickshire	4599	5963	77.1
Wolverhampton City	No data available		
Worcestershire	228	5985	3.8
West Midlands	**23578**	**42075**	**56.0**

Source: National Childhood Obesity Database, 2006

Rates of Obesity and Overweight

Table 7.3 shows obesity rates in Reception and Year 6 children for all West Midlands PCTs from the 2006 data collection exercise.

Care must be taken in any comparison of obesity rates between areas, and especially if attempting to draw conclusions based on comparisons of obesity rates at small area level due to the low levels of completeness and small numbers involved. Particular care must be taken when attempting to use obesity rates at individual school level, as the numbers of children involved can be very small and large variations in obesity rates are common. One approach that avoids the pitfalls of releasing school-level obesity data was piloted in South Staffordshire, where Control Chart methodology was used to analyse school-level rates, with the small number of schools with outlying obesity rates being followed up (5). This approach allowed the PCT to utilise all the obesity data available to contribute to local public health action planning, without the potential negative effects of releasing school-level obesity rates.

Across West Midlands PCTs the 2006 monitoring data suggest that obesity rates in the region are in line with the national pattern:-

- 10.1% of Reception Year children in the West Midlands are obese compared to 10.0% for England (Chi Square p = 0.38)
- 17.6% of Year 6 children in the West Midlands are obese compared to 17.3% for England (Chi Square p = 0.36)

Table 7.3: 2006 Childhood Obesity Monitoring data for West Midlands PCTs Obesity rates in Reception and Year 6

PCT (from October 2006)	No. Obese			% Obese		
	Reception	Year 6	Total	Reception	Year 6	Total
Birmingham East & North	318	No data	318	9.3	No data	9.3
Coventry Teaching	No data	617	617	No data	20.4	20.4
Dudley	195	194	389	12.3	20.3	15.3
Heart of Birmingham Teaching	418	831	1249	10.9	22	16.4
Herefordshire	117	220	337	8.6	15.5	12.1
North Staffordshire	166	No data	166	11	No data	11
Sandwell	235	14	249	12	17.5	12.2
Shropshire County	145	435	580	11.6	15.9	14.6
Solihull	152	No data	152	8.1	No data	8.1
South Birmingham	265	No data	265	10	No data	10
South Staffordshire	466	778	1244	9.1	15.6	12.3
Stoke on Trent	218	No data	218	11.4	No data	11.4
Telford and Wrekin	109	305	414	11.9	19.4	16.6
Walsall Teaching	40	39	79	21.4	20.4	20.9
Warwickshire	386	686	1072	8.2	14.9	11.6
Wolverhampton City	203	No data	203	11.7	No data	11.7
Worcestershire	486	21	507	10.4	9.2	10.3
West Midlands	**3919**	**4140**	**8059**	**10.1**	**17.6**	**12.9**

Source: National Childhood Obesity Database, 2006

Table 7.4: 2006 Childhood Obesity Monitoring data for West Midlands PCTs Overweight rates in Reception and Year 6

PCT (from October 2006)	No. Overweight			% Overweight		
	Reception	Year 6	Total	Reception	Year 6	Total
Birmingham East & North	No data	382	318	No data	11.2	9.3
Coventry Teaching	452	No data	617	15	No data	20.4
Dudley	136	206	389	14.2	13	15.3
Heart of Birmingham Teaching	511	354	1249	13.5	9.2	16.4
Herefordshire	207	194	337	14.6	14.2	12.1
North Staffordshire	No data	190	166	No data	12.6	11
Sandwell	10	230	249	12.5	11.7	12.2
Shropshire County	399	193	580	14.6	15.5	14.6
Solihull	No data	225	152	No data	12	8.1
South Birmingham	No data	312	265	No data	11.7	10
South Staffordshire	748	626	1244	15	12.3	12.3
Stoke on Trent	No data	279	218	No data	14.7	11.4
Telford and Wrekin	235	135	414	14.9	14.7	16.6
Walsall Teaching	24	26	79	12.6	13.9	20.9
Warwickshire	608	581	1072	13.2	12.4	11.6
Wolverhampton City	No data	204	203	No data	11.8	11.7
Worcestershire	35	694	507	15.4	14.9	10.3
Total	**3365**	**4831**	**8059**	**14.3**	**12.5**	**12.9**

Source: National Childhood Obesity Database, 2006

Table 7.4 shows that, across West Midlands PCTs the 2006 monitoring data suggest that rates of overweight in the region are also in line with the national pattern: -

- 14.3% of Reception Year children in the West Midlands are overweight compared to 12.8% for England (Chi Square p = 0.10)
- 12.5% of Year 6 children in the West Midlands are overweight compared to 13.8% for England (Chi Square p = 0.08)

Conclusions

The 2006 childhood obesity monitoring process was the first time that this exercise was carried out at a national level. Despite the challenges that this presented, in particular due to the short timescale available for organising and carrying out monitoring, the majority of PCTs were able to contribute data. Despite the limitations of the data described, this national dataset provides a valuable initial picture of the prevalence of obesity and overweight in children in England. The West Midlands displays prevalence levels in line with the National findings.

The experience from the 2006 data collection showed that there are things that could be done differently to make the monitoring process easier to carry out and to improve the reliability of the data. The Department of Health has stated that a minimum of 80% coverage in both year groups will be required. In light of this PCTs are looking at ways to encourage more schools to

participate, have fewer children opt out, and ensure that the practical arrangements made with schools enable as many children to participate as possible. As well as being an important National exercise, the Child Measurement Programme provides an opportunity to strengthen local working relationships between PCTs, schools and other partners in promoting healthy lifestyles for children.

The second round of the monitoring process will be completed by the end of the summer term 2006/07. As improvements are made to the data collection process and further monitoring data are obtained this resource will become increasingly important in tracking how obesity rates change at national and local level.

7.3 Preventing Obesity in Childhood

Systems of monitoring trends in childhood obesity and tracking progress towards the Government's PSA target are now in place, but in order to achieve the target, effective ways of preventing obesity need to be identified and implemented across the country. This section outlines a current research study into the development of an effective childhood obesity prevention intervention that is based in Birmingham.

Preventing Obesity in Childhood: What Works

Many interventions aimed at preventing childhood obesity have been developed and evaluated. These range from relatively simple to multi-faceted complex interventions, and encompass components aimed at improving diet, increasing physical activity, reducing sedentary behaviours and improving general health. A variety of settings have been used for delivering prevention interventions, including family, pre-school, school, community and health care settings (6).

Despite the extensive research into interventions aimed at preventing childhood obesity, there is minimal evidence to support their effectiveness. The National Institute for Health and Clinical Excellence (NICE) published a clinical guideline entitled 'Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children' in December 2006 (6). NICE reported that many studies looking into obesity prevention had an inadequate duration of follow up, were conducted outside of the UK and were poorly reported. The guideline also stated that there was a dearth of evidence looking at obesity interventions aimed at key 'at-risk' groups in the UK, such as young children and certain ethnic minority groups. NICE concluded that there was a further need for well designed trials of interventions to tackle obesity, with a period of follow up of at least 12 months.

Birmingham Healthy Eating and Active Lifestyle for Children Study (BEACHeS)

The University of Birmingham Department of Public Health and Epidemiology are currently undertaking the Birmingham healthy Eating and Active lifestyle for Children Study (BEACHeS), a research study funded by the National Prevention Research Initiative (a multi-disciplinary initiative aimed at supporting high quality research into disease prevention).

The purpose of the BEACHeS study is to develop and pilot an intervention package aimed at preventing obesity in children aged 6-8. The study is focussing on this relatively young age group as obesity appears to be established in the pre-pubescent years, and once established, is likely to persist into adulthood (7).

The study aims to develop an intervention that will have an impact on children from all ethnic backgrounds but there is a focus on South Asian children, as the UK, and in particular, Birmingham, has a substantial South Asian population (4.1% of the UK population and 18.5% of the Birmingham population were Indian, Pakistani or Bangladeshi in 2001 (8)). South Asians are particularly vulnerable to the health consequences of obesity (heart disease, type II diabetes) (9) and so it is important to ensure effectiveness of obesity prevention interventions in these ethnic groups.

BEACHeS Study Methods

The study commenced in September 2006 and is being conducted in two phases over a 3-year period. These phases are based on the Medical Research Council framework for the development and evaluation of complex interventions (10). Eight primary schools in Birmingham with a greater than 50% proportion of South Asian pupils have been recruited.

The aim of the first phase is to develop an intervention package using a combination of information from the scientific literature, ‘lay knowledge’ from stakeholders related to the participating schools and surrounding communities and expert input from a range of professional stakeholders. Various stakeholders are attending focus groups so that their views on potential interventions can be explored. The intervention will be developed and delivered during the next school year.

The second phase comprises an exploratory trial to evaluate the feasibility, acceptability and effectiveness of the intervention package. The developed intervention will be delivered to half of the participating schools and communities during the next school year.

Children in years 1 and 2 from the eight participating schools have been assessed in a variety of ways during 2006-7 to provide a baseline, and the follow up measures will be undertaken the year after delivery of the intervention (2008-9). Assessments include BMI, waist circumference, skin fold thickness, bioimpedance analysis, blood pressure, physical activity

monitoring, 24-hour dietary intake assessment, and measures of self-perception and health related quality of life.

Preliminary Data from the BEACHeS Study Stakeholder Focus Groups

Several of the stakeholder focus groups expressed that, while schools are an important setting for obesity prevention in the target age group, schools are becoming saturated with healthy eating and physical activity initiatives. Teachers, community representatives and some parent groups in particular felt that family and community settings are important to target for prevention interventions.

Several common themes for obesity prevention interventions came up in the focus group discussions. These include; developing parenting skills, providing activities for families, improving children's self-esteem, providing daily physical activity in school, improving healthy food provision in school and rewarding children for healthy behaviours.

Interestingly, the focus groups also yielded much data on potential barriers to the successful implementation of obesity prevention interventions. Some of these barriers are specific to the South Asian population. For example, many children from Islamic families spend every evening at the mosque, and so do not have the opportunity for physical activities or attendance at clubs during this time.

The BEACHeS study team are currently in the process of detailed analysis of data from the stakeholder focus groups, which will be used in the development of the intervention package.

Preliminary Data from the BEACHeS Study Baseline Measures

Response Rates

Of 1090 pupils eligible in the 8 schools, 574 have undergone baseline assessments (52.7%).

Body Mass Index and Prevalence of Obesity and Overweight

BMI was used to categorise children into 4 groups; underweight, healthy weight, overweight and obese according to the age and gender specific UK National 1990 BMI percentiles reference data. The 5^{th}, 85^{th} and 95^{th} percentiles were used as cut-offs for the categories above.

The proportion of overweight and obese children in the study population was 22.5% (males 20.3%, females 24.9%). Table 7.5 shows the proportions of children in each weight category.

Table 7.5: Number and proportion of children in BEACHeS study population in each weight category

Weight category	Males (%)	Females (%)	Total (%)
Underweight	32 (10.8)	21 (7.7)	53 (9.3)
Healthy weight	204 (68.9)	184 (67.4)	388 (68.2)
Overweight	24 (8.1)	23 (8.4)	47 (8.3)
Obese	36 (12.2)	45 (16.5)	81 (14.2)
Total	296 (100)	273 (100)	569* (100)

*Missing height or weight data for 5 children in the study group

Overweight, Obesity and Age

There was little variation in the prevalence of overweight and obesity across the age group in the BEACHeS study population, as illustrated in Figures 7.1 and 7.2. The age band studied is quite narrow (5-7 year olds), so one would not necessarily expect to see a large variation in prevalence.

Figure 7.1: Overweight and obesity prevalence in BEACHeS study population by age - Males

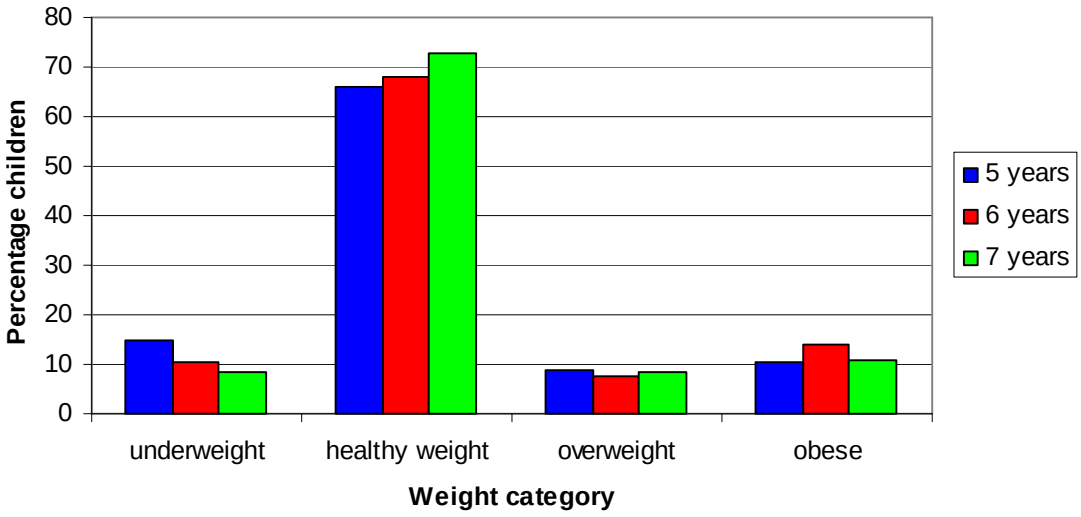
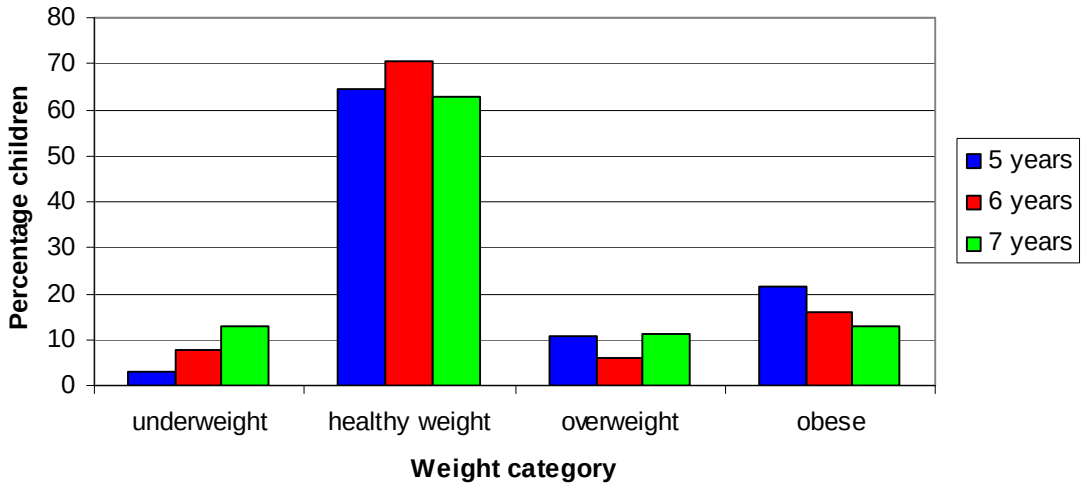


Figure 7.2: Overweight and obesity prevalence in BEACHeS study population by age - Females



Overweight, Obesity and Ethnicity

Ethnic groups were categorised into Pakistani, Bangladeshi, Indian and other. The proportions of children in each group were 61.7%, 14.3%, 4.7% and 19.3% respectively. There were no obvious differences in overweight and obesity prevalence between the different ethnic groups (Figures 7.3 and 7.4). The Indian subgroup had the highest proportion of children in the healthy weight category and lower proportions in the overweight and obese categories, however the overall number of children in this subgroup is low, and so this finding is difficult to interpret. The Bangladeshi subgroup had the highest proportion of children in the obese category.

Figure 7.3: Overweight and obesity prevalence in BEACHeS study population by ethnicity - Males

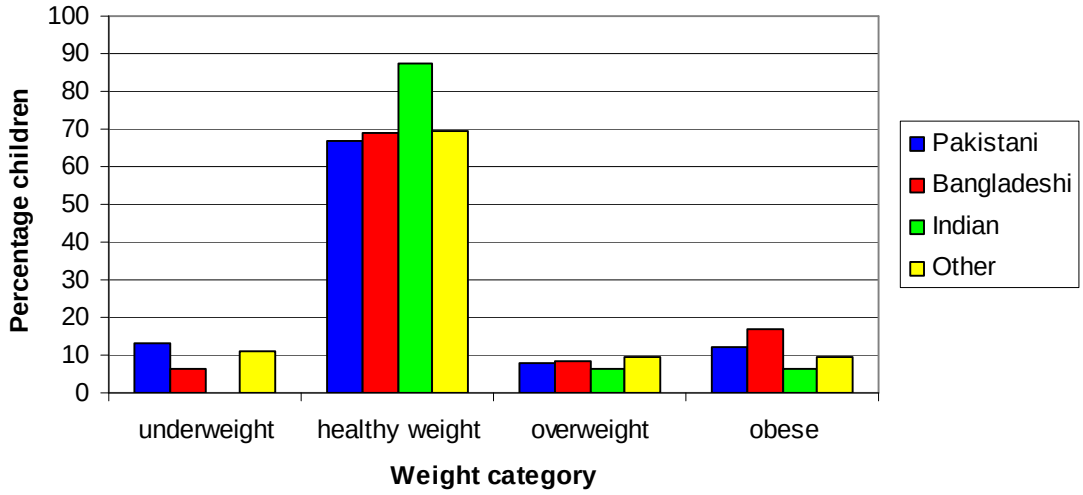
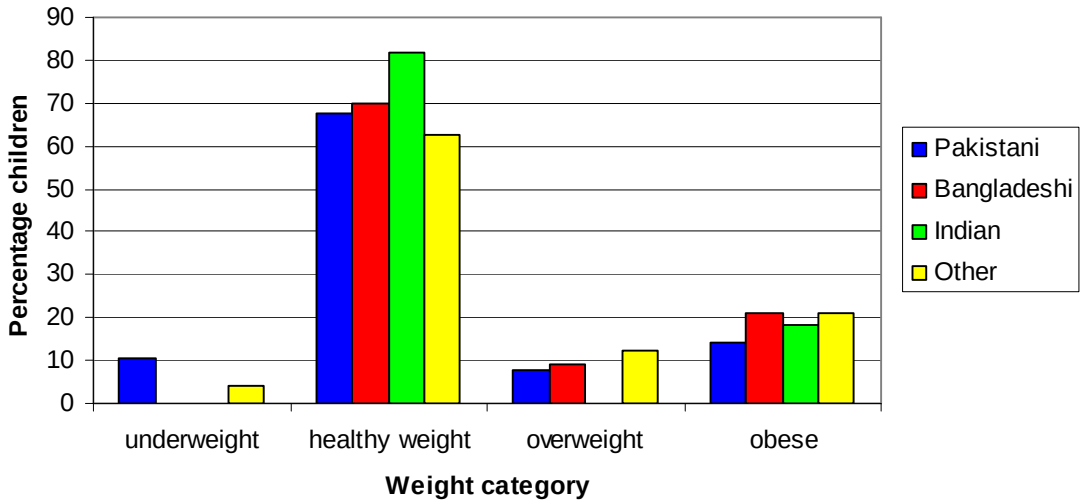


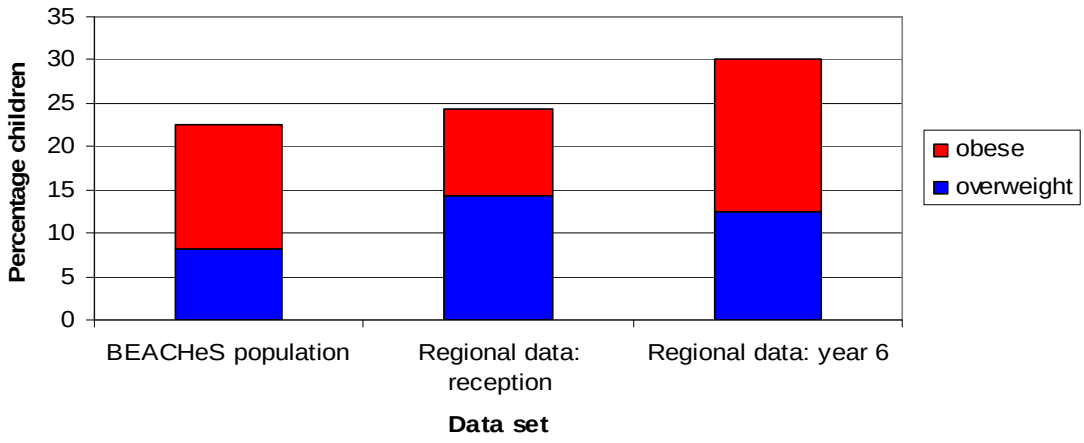
Figure 7.4: Overweight and obesity prevalence in BEACHeS study population by ethnicity - Females



Comparison of Regional Data from National Monitoring and BEACHeS Study Data on Prevalence of Overweight and Obesity

Figure 7.5 compares the prevalence of overweight and obesity in the BEACHeS study population (5-7 year olds) with the regional prevalence in reception age children (4-5 year olds) and year 6 children (10-11 year olds). We would expect the prevalence to increase with age. The regional prevalence of combined overweight and obesity in reception age regionally and in the BEACHeS population is similar, but there is a greater prevalence of obesity in the BEACHeS population. Again, these comparisons need to be made with caution due to the data quality of the national monitoring programme and the response rates within the BEACHeS study.

Figure 7.5: Comparison of regional data and BEACHeS study data on prevalence of overweight and obesity



Next Steps for the BEACHeS Study

The BEACHeS study will combine the analysis from the stakeholder focus groups with the existing evidence base on childhood obesity prevention interventions to develop an intervention package over the next 3 months. An implementation planning phase will then take place in Autumn 2007 and delivery of the intervention package will commence in 4 of the 8 participating schools in January 2008 for 6 months. During this various process measures will be undertaken. The final year of the study will comprise of follow up measures in 2008/9 in years 3 and 4 children.

7.4 Further Information

Further information about the National Child Measurement Programme is available via the Department of Health website:
www.dh.gov.uk/en/Policyandguidance/Healthandsocialcaretopics/Healthylivin g/DH_073787

Further information on the BEACHeS study can be found at:
www.pcpoh.bham.ac.uk/publichealth/beaches/index.htm

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Acknowledgments

Martin Dudgon and Rachel Halliwell at South Staffordshire PCT for their assistance in obtaining data from the National Childhood Obesity Database.

The Birmingham healthy Eating, Active lifestyle for Children Study (BEACHeS) is funded by the National Prevention Research Initiative (NPRI, http://www.npri.org.uk) and we are grateful to all the funding partners for their support: British Heart Foundation; Cancer Research UK; Department of Health; Diabetes UK; Economic and Social Research Council; Medical Research Council; Research and Development Office for the Northern Ireland Health and Social Services; Chief Scientist Office, Scottish Executive Health Department; Welsh Assembly Government and World Cancer Research Fund. The investigator and collaborative team include: The University of Birmingham: P Adab (PI), T Barratt, KK Cheng, A Daley, J Duda, P Gill, M Pallan, J Parry; The Nutritional Epidemiology Group at the University of Leeds: J Cade; The MRC Epidemiology Unit, Cambridge: U Ekelund; The University of Edinburgh: R Bhopal; Birmingham City Council: S Passmore; Heart of Birmingham PCT: M Howard; Birmingham Community Nutrition and Dietetic Service: E McGee. We thank the dedicated team of researchers at The University of Birmingham for managing and co-ordinating the project. We are also grateful for support from the Department of Health Support for Science (MidRec), the Health Foundation, Waterstones, Tesco and the School Stickers Company. We especially want to thank the children, families, schools and communities included in the study (http://www.pcpoh.bham.ac.uk/publichealth/beaches/), without whom this project would not have been possible.

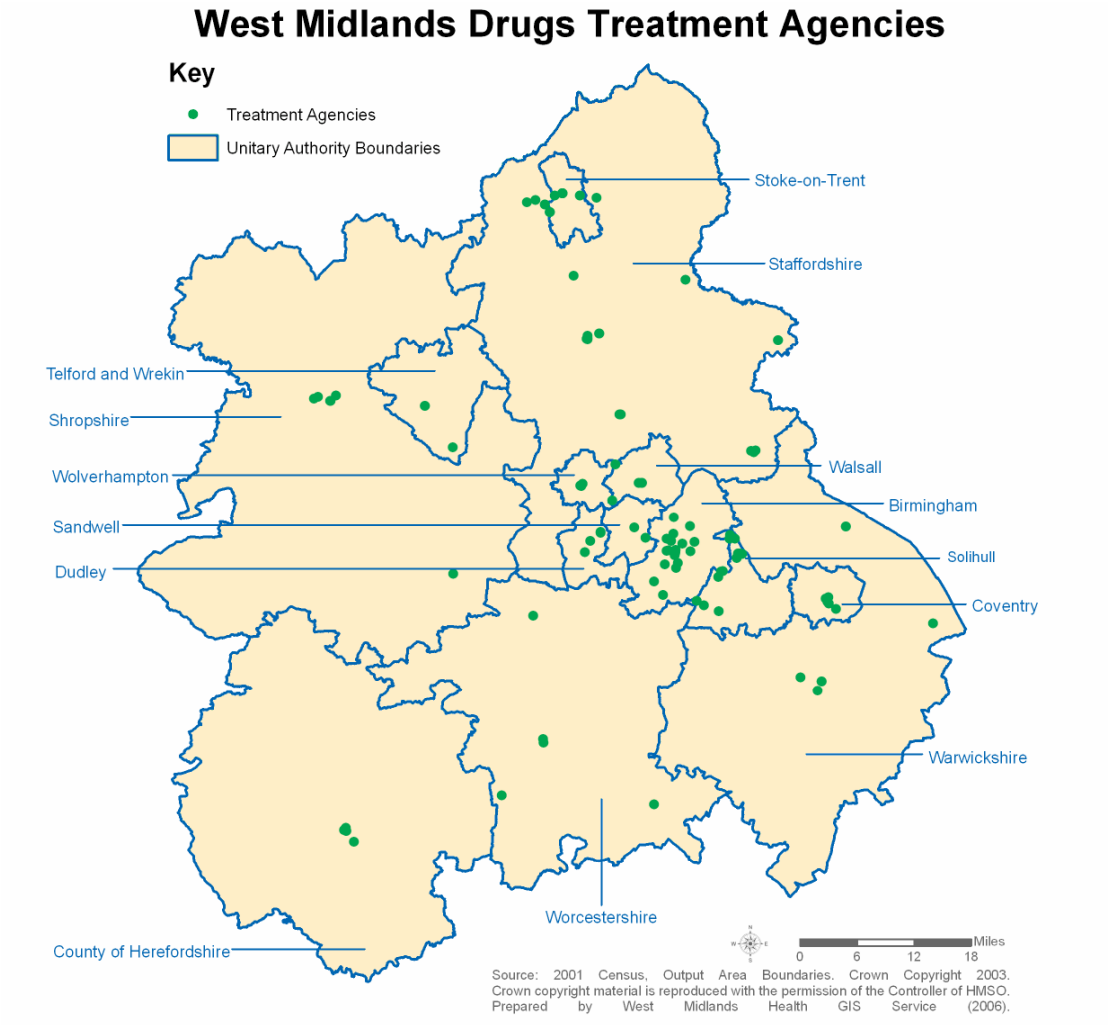
CHAPTER EIGHT: TREATMENT FOR DRUG MISUSE IN THE WEST MIDLANDS 2005/6

The chapter is based on the Annual Report of the National Drug Treatment Monitoring System (NDTMS)

8.1 Summary

- This chapter is based on the 3rd annual report of NDTMS West Midlands, and it presents results for the period 1st April 2005 to 31st March 2006;
- National estimates indicate that both drug misuse and treatment for misuse are not generally as commonplace in the West Midlands as in other regions;
- A total of 18,682 clients living in the West Midlands region received treatment for drug misuse during the year;
- Treatment was delivered by 129 agencies, based in 94 different locations, and organised within 14 Drug (& Alcohol) Action Team, or D(A)AT, areas[(a)]. Five agencies treated almost half of all clients, and 30% of all clients lived in Birmingham;
- The proportion of residents in treatment varied considerably between D(A)ATs - in some urban areas the rate was more than double that for some rural counties;
- The majority of clients were under the age of 34, and the ratio of men to women was 3 to 1. In several Metropolitan areas there was some over-representation of White clients compared to their resident populations;
- Heroin was the primary problem substance in four out of every five-treatment episodes. Almost half of treatment episodes involved clients with at least two problem drugs (the most common combination being heroin and crack);
- Prescribing services accounted for more than half (56%) of treatment types. Other non-residential structured services accounted for a further 42%, while residential and inpatient services accounted for only a small fraction of treatment (2%).

Map 8.1: The Geography of Drug Treatment



8.2 Introduction

This chapter summarises the data collected by the National Drug Treatment Monitoring System (NDTMS) in the West Midlands Region for the year, which ended on 31st March 2006.
With their consent, the NDTMS collects data on all clients and patients who are receiving structured care [(b)] for drug misuse from registered treatment agencies[(c)]. An initial dataset is collected when the person is first seen, and follow-up information is collected as they receive and complete treatment. Treatment agencies provide data about their clients to the NDTMS as part of their obligations to the National Treatment Agency for Substance Misuse (NTA) [(d)]. The range of substances for which any individual agency provides treatment varies, but the focus of treatment – and therefore of this report - is illicit substances, and in particular those categorised as Class A under the Misuse of Drugs Act 1971. The vast majority of clients discussed in this report are Heroin users or poly users[(e)]. Clients for whom alcohol was the main problem substance are excluded from this report.

A feature of drug treatment, and therefore of NDTMS data, is that clients may not necessarily receive treatment in the area where they live. Where results are presented geographically in this report, they are shown according to the location of the clients' residence.

8.3 Recent Trends in Data Collection

NDTMS results have grown in importance: the Government's drug strategy has included a commitment to double the numbers in treatment within the 10 years to 2008(f), and it has been critical for the NDTMS to be able to record progress towards this goal. In addition, NDTMS results also support the assessment of NHS Primary Care Trusts through such processes as the Healthcare Commission's annual health check(g).

Recent years have also seen the introduction of improved methods of data collection from treatment agencies. In particular, the continuing adoption of improved systems of Electronic Data Transfer (EDT) has meant that many more treatment agencies transfer information directly from their own systems to NDTMS. This has raised the quality and accuracy of the information collected, as well as the consistency between agency and NDTMS records.

Information is collected from all agencies on a monthly basis by the West Midlands regional office of the NDTMS. In a process paralleled in other parts of the country, information about clients treated in the region is then passed to the NDTMS national office, where a consistent national dataset is produced. It is the part of this dataset relating to the West Midlands, which has been used as the basis of this report.

The way in which data about treatment for drug misuse are collected has also adapted to changes in government policy. One aspect of this, which has become increasingly important, is the monitoring of individuals entering treatment directly from the criminal justice system, in particular through the Government's Drug Interventions Programme(h). This report does not particularly highlight the effects of these changes, but future reports from the NDTMS will reflect this development.

8.4 The Structure of Data Collected

The information collected by the NDTMS is organised into three sections; data about individual clients; data about each episode of treatment experienced by a client; and data about the types of treatment(i) received within each episode.

For the purposes of this analysis, the 'clients in treatment' in a particular period are defined as those who experienced a treatment episode (or part of one) for drug misuse during that period.

During the year 2005/6, there were 18,682 clients in treatment living in the West Midlands region(j). The fact that 25,569 episodes were underway at some time during the year illustrates that some clients experienced more than one episode: in fact, one in every four (27%) did so.

Each episode, in turn, typically consisted of a number of different treatment types, and the nature and duration of each of these is also recorded. In 2005/6, each treatment episode in the West Midlands involved an average of 1.4 treatment types - leading to a total of 35,785 being recorded for the region.

8.5 Prevalence and Treatment in the English Regions

Evidence from the British Crime Survey[k] shown in Table 8.1 suggests that the actual prevalence of misuse in the West Midlands, i.e. the proportion of individuals in the population misusing drugs, may be lower than in any other English region.

Table 8.1: Prevalence of drug misuse and treatment

Government Office Region	% 16-59 year olds using any drug (1)	% 16-59 year olds using Class A drugs (1)	Numbers in Treatment 2004/5 per 1,000 population (all ages) (2)
East Midlands	9.2	3.0	3.16
East of England	10.3	3.2	2.48
London	11.2	5.2	4.34
North East	9.8	3.7	4.23
North West	11.6	3.4	5.19
South East	10.1	3.3	2.27
South West	13.3	3.2	3.76
West Midlands	9.1	2.6	3.49
Yorkshire and The Humber	9.0	2.7	4.93
England	10.5 (3)	3.4 (3)	3.60

Notes for this table:

(1) Results of the British Crime Survey 2005/6. Respondents aged 16-59 using drugs 'in the last year'. Available from www.homeoffice.gov.uk/rds/pdfs06/hosb1506.pdf

(2) Calculated from NTA data (www.nta.nhs.uk/programme/national/perf_info_sept06/nos_in_tment_200506.pdf) and National Statistics Mid Year Estimates of population (from Nomis on 17 October 2006)

(3) These relate to England & Wales

For the size of its resident population, the number of people in treatment in the West Midlands is certainly not high compared to other regions. Comparing what we know about the numbers in treatment with the total population in 2005 of 5.4 million for the West Midlands region, we can estimate a treatment rate of nearly 3.5 per 1,000 (expressed differently, about one third of 1%).

NDTMS data is currently collected by eight other regional teams in England, and the equivalent estimates, shown in Table 8.1, indicate that the treatment rate in the West Midlands is slightly below the average for England as a whole.

However, when the comparatively low estimated prevalence of misuse in the region is taken into account, it may be that the number in treatment exceeds the national average.

Whatever the relative position of the West Midlands, in common with other parts of the country the number of individuals recorded as receiving treatment for drug misuse has seen a substantial expansion in the region. An 18% annual increase in the numbers in treatment in the West Midlands has been reported(l), with an equivalent increase in England of 13%.

The recorded growth in treatment is also echoed in a comparison of the number of clients experiencing treatment in the West Midlands in 2005/6 (18,682) with the number reported in 2001/2 (9,505), although it is important to keep in mind that these figures are not calculated on a consistent basis. Historically, there have also been concerns with the completeness of NDTMS data, and it is therefore difficult to say how much of the rise might be the result of more comprehensive recording, particularly as there have recently been efforts to improve data quality.

8.6 Agencies Providing Treatment

At the end of March 2006 there were 129 treatment agencies in the region reporting to the NDTMS, based in 94 different locations, and organised within 14 D(A)AT areas(m). As Map 8.1 illustrates, the number of agencies within each D(A)AT area varied - from only 3 in Telford & Wrekin, to as many as 25 in Birmingham.

Agencies providing treatment varied considerably in size, and Table 8.2 lists the five largest (by the number of clients in treatment). These five treated 8,792 clients – almost half of the total (47%). Many other agencies were comparatively small – fewer than half of them provided more than 100 episodes during the year to clients in the region. In some cases however, differences in numbers of clients were the result of different agency specialisms: some treating smaller numbers may have been providing more intensive treatment than others, for example.

Table 8.2: The largest treatment providers in the region, 2005/6

Treatment Provider (1) (and corresponding Drug Action Team)	Number of Clients
Birmingham & Solihull Mental Health Trust	4,007
Drug Solutions (Birmingham)	1,932
North Staffordshire combined Healthcare NHS Trust (including Edward Myers Centre)	1,200
Horizon House, Wolverhampton	1,113
Coventry Community Drugs Team	1,096

Note for this table:
(1) This table is based on the aggregation of treatment providers where they form part of the same NHS mental health trust

8.7 Drug (& Alcohol) Action Team Areas

The diversity of scale among treatment providers is also reflected to a lesser degree among D(A)AT areas. Table 8.3 has been compiled using data on the number of clients in treatment in each area. Each individual is counted only once in each D(A)AT in which they lived, and the total number of clients has then been compared to the resident population to produce a rate for each area.

It is clear from this analysis that there was considerable variation in the proportion of residents receiving treatment: in Stoke-on-Trent for example, the D(A)AT area with the highest proportion, the rate was more than double that for Staffordshire, and Warwickshire. This perhaps illustrates a wider pattern, with urban areas generally having higher rates and, conversely, rural counties hosting proportionately fewer clients in treatment. This conclusion would coincide with evidence found from other parts of the country [(n)].
An exception to this pattern in the West Midlands would appear to be the rural county of Herefordshire, which had a rate of treatment comparable with urban areas such as Walsall and Birmingham.

A great deal of caution is necessary, however, in interpreting these patterns as an indication of the relative prevalence of misuse within the populations of these areas. It is possible, for example, that the higher rate in Herefordshire is a result of treatment being more readily accessed by those residents who were misusing, rather than of a higher rate of misuse. Indeed, the causes of these variations in the proportion of residents in treatment in different D(A)AT areas might merit further investigation elsewhere.

A further point illustrated by the table is the dominance of Birmingham, which accounts for almost a third of West Midlands' clients. By numbers in treatment, Birmingham is the largest Drug Action Team (or D(A)AT) in England and its presence puts the West Midlands in a unique position – no other English region is dominated to such an extent by a single D(A)AT area.

The last column in Table 8.3 shows the proportion of the D(A)AT area (in terms of the Super Output Areas used in the 2001 Census of Population)

within the most deprived 20% of the country. This has been included as an indication of the character of each area, and to allow drug treatment to be put in a wider social and economic context.

Table 8.3: Clients in treatment per head of population by Drug (& Alcohol) Action Team

Drug (& Alcohol) Action Team Area (Of client residence)	Pop'n Aged 15-44 (000s) (1)	% Of West Midlands Population 15-44	Clients in Treatment during 2005/6		% Of West Midlands Clients Aged 15-44 (3)	Clients in Treatment per 1,000 Pop'n Aged 15-44	% Of population in most deprived 20% nationally 2004 (4)
			All ages (2)	Aged 15-44			
Stoke on Trent	99.3	4.5%	1,294	1,237	7.1%	12.5	50.6%
Wolverhampton	101.1	4.6%	1,294	1,207	6.9%	11.9	47.5%
Birmingham	453.2	20.8%	5,672	5,220	30.0%	11.5	55.2%
Herefordshire	62.3	2.9%	647	603	3.5%	9.7	1.7%
Walsall	99.6	4.6%	946	914	5.3%	9.2	40.8%
Coventry	136.9	6.3%	1,179	1,071	6.2%	7.8	33.5%
Telford & Wrekin	67.6	3.1%	553	509	2.9%	7.5	18.5%
Dudley	119.7	5.5%	950	893	5.1%	7.5	19.8%
Solihull	75.6	3.5%	590	561	3.2%	7.4	15.8%
Sandwell	119.7	5.5%	814	780	4.5%	6.5	53.5%
Worcestershire	212.1	9.7%	1,464	1,364	7.8%	6.4	6.9%
Shropshire	104.9	4.8%	720	659	3.8%	6.3	1.6%
Staffordshire	316.2	14.5%	1,891	1,775	10.2%	5.6	8.4%
Warwickshire	215.4	9.9%	1,181	1,108	6.4%	5.1	5.1%
West Midlands	**2,183.6**	**100%**	**18,682**	**17,401**	**- (3)**	**8.0**	**26.3%**

Notes for this table:

(1) National Statistics Mid Year Estimates 2005

(2) These totals may differ by a small amount (generally less than a quarter of a percent) from those published by the NTA (at www.nta.nhs.uk/programme/national/perf_info_sept06/nos_in_tment_200506.pdf). This is primarily as a result of the data in this table not including those records for which a DAT of residence was not recorded.

(3) These figures do not total 100% owing to some clients being treated in more than one DAT area during the year

(4) Indices of Deprivation 2004. Further information available from www.communities.gov.uk/index.asp?id=1128442.

In general terms, deprivation has been cited elsewhere as having a relationship with levels of drug misuse[o], and it also appears from Table 8.3 that this relationship may be reflected in West Midlands' data. With the exceptions of Herefordshire and, to a lesser extent, Sandwell, more deprived areas do seem to be among those which have proportionately larger numbers in treatment.

8.8 Clients who were 'new presentations'

One other difference in the character of treatment systems in different D(A)AT areas is the relative size of the population of 'new presentations' compared to the number of clients in treatment during the year. Table 8.4 illustrates the difference between West Midlands D(A)ATs in this regard. New presentations are defined in this analysis as those clients who experienced an episode which started within the year, although clearly this does not mean that this was their first treatment episode, or even their first episode within any particular D(A)AT.

A wide difference is revealed in the proportion of clients in treatment in each D(A)AT area who experienced new presentations. Nearly two-thirds of clients in Wolverhampton were new by this measure, while in Herefordshire and Telford & Wrekin the equivalent proportion was less than half. These differences might be explained by the extent to which each local treatment system was expanding, or might reflect the different mix of treatment delivered by each D(A)AT.

Table 8.4: Clients in treatment and new presentations by Drug (& Alcohol) Action Team

Drug Action Team Area (of client residence)	Clients in treatment 2005/6	New Presentations 2005/6 (1)	New Presentations as a % of All Clients in Treatment
Wolverhampton	1,294	846	65.4%
Birmingham	5,672	3,597	63.4%
Dudley	950	600	63.2%
Walsall	946	587	62.1%
Coventry	1,179	722	61.2%
Staffordshire	1,891	1,126	59.5%
Stoke-on-Trent	1,294	742	57.3%
Solihull	590	330	55.9%
Sandwell	814	439	53.9%
Warwickshire	1,181	624	52.8%
Shropshire	720	378	52.5%
Worcestershire	1,464	763	52.1%
Telford and Wrekin	553	254	45.9%
Herefordshire	647	219	33.8%
West Midlands Region	18,682 (2)	11,005 (2)	58.9%

Notes for this table:

(1) New presentations are defined in this analysis as those who experienced an episode, which started (i.e. triaged) within the year.

(2) These figures do not represent totals of their respective columns owing to some clients being triaged in more than one D(A)AT area during the year.

8.9 The Locations of Treatment and Residence

Something can also be learnt about the character of the treatment system in each area by considering the question of how the D(A)AT area in which a client lived relates to the D(A)AT from which they received treatment. While the vast majority (97%) of treatment episodes were received by clients who live in the D(A)AT of treatment, the small minority (3%) who did not were not evenly distributed.

The county of Shropshire, for example, occupied a unique position in the region in delivering almost 13% of its treatment episodes to clients from outside of the DAAT - and more than half of these were from outside the region. This reflected the fact that Shropshire hosts the largest number of residential services in the region, and half of the agencies in the county were of this type.

There were also small geographical relationships between pairs of D(A)ATs: 4% of Shropshire's episodes were received by clients living in Telford & Wrekin (and vice versa), and 3% of Walsall's by clients in Wolverhampton.

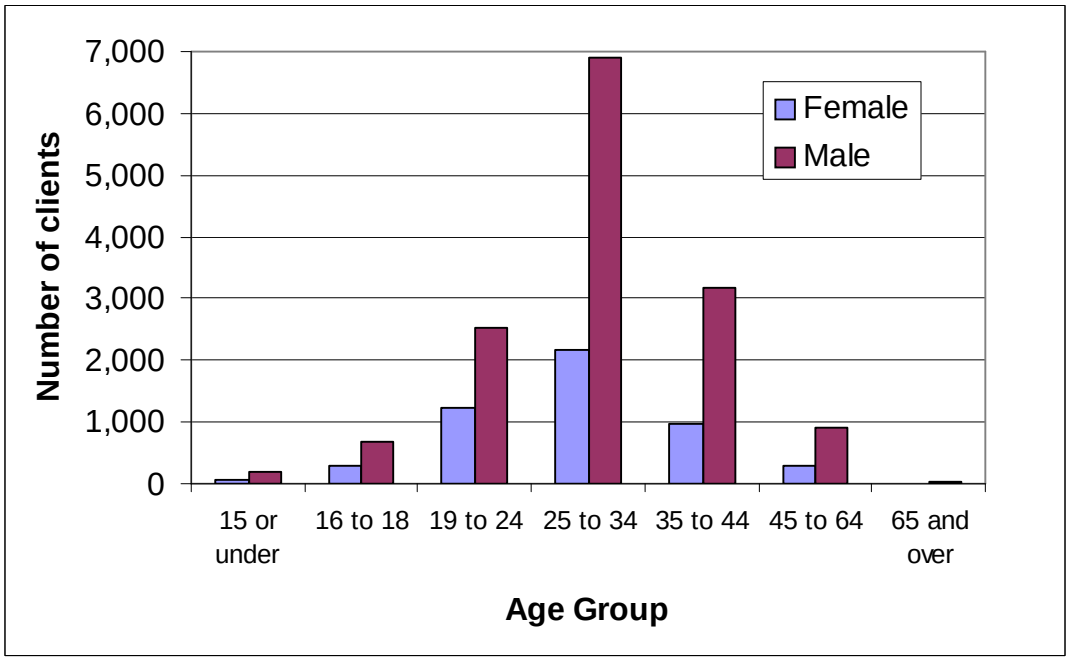
8.10 Gender and Age

Most clients in treatment (78%) were in their 20s and 30s. Within this range, almost half (47%) were between the ages of 25 and 34.

The ratio of men to women receiving treatment for drug misuse in the West Midlands was approximately 3 to 1, a ratio which is broadly in line with findings elsewhere.

As Figure 8.1 illustrates, the age profile of female clients had some similarities to that for males, although females tended to be younger - 39% were under 24, while the equivalent figure for males was only 29%.

Figure 8.1: Clients in treatment in the West Midlands by age and sex



Among D(A)AT areas, the lowest female-to-male ratio was recorded in Dudley, where only 21% of clients were female. The highest ratio occurred in four D(A)AT areas where at least 28% of clients were female: Stoke-on-Trent; Telford & Wrekin; Wolverhampton; and Worcestershire.

As Table 8.5 shows, age distribution showed a slightly more varied profile across the region. Clients under the age of 24, for example, accounted for almost one in three of all clients living in the Black Country boroughs (Dudley, Sandwell, Walsall, and Wolverhampton), while in some areas only one in five clients fell into that category.

Table 8.5: Clients in treatment by age, sex, ethnicity and Drug (& Alcohol) Action Team

Drug (& Alcohol) Action Team (Of client residence)	Female clients in treatment	Clients aged under 24	White clients in treatment (1)
Birmingham	24.8%	25.8%	73.6%
Coventry	27.7%	20.1%	86.1%
Dudley	21.3%	37.1%	93.6%
Herefordshire	27.0%	25.0%	98.6%
Sandwell	27.1%	32.8%	81.1%
Shropshire	26.4%	24.4%	99.9%
Solihull	24.1%	25.9%	92.7%
Staffordshire	25.8%	27.1%	96.1%
Stoke-on-Trent	28.8%	19.1%	95.1%
Telford and Wrekin	28.0%	23.3%	95.8%
Walsall	24.9%	32.6%	90.7%
Warwickshire	25.9%	23.4%	97.1%
Wolverhampton	30.1%	27.4%	78.8%
Worcestershire	28.0%	24.7%	98.6%
West Midlands Region	**25.5%**	**26.0%**	**86.8%**

Note for this table:

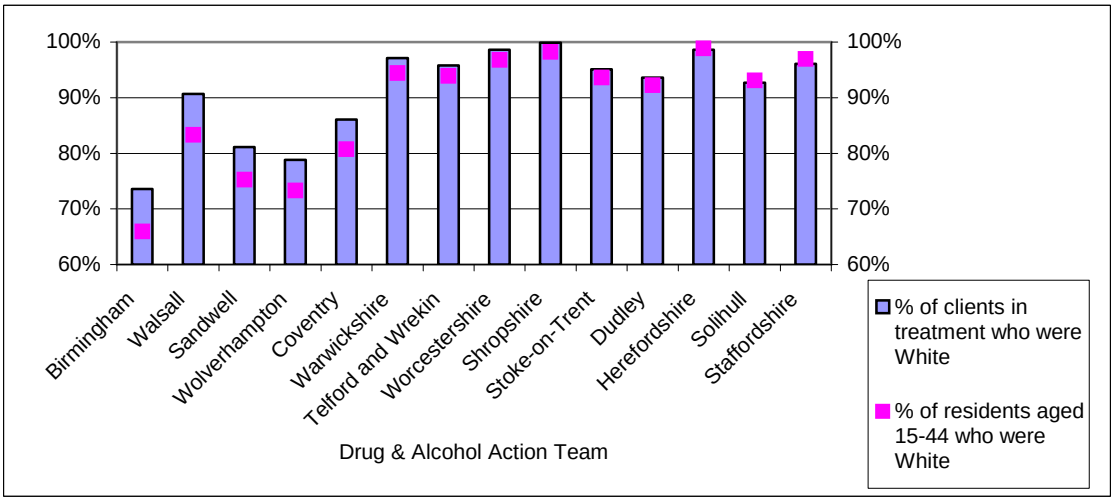
(1) As a percentage of those clients who stated their ethnicity

8.11 Ethnicity and Treatment for Drug Misuse

In terms of ethnicity, it appears that in the West Midlands the proportion of clients from minority groups was, overall, very similar to that in the resident population. The proportion of clients in treatment who were White was 87%, while 86% of the resident population aged 15 to 44 were from White ethnic groups.

As Figure 8.2 indicates, there was a larger difference within the client and resident populations in some Metropolitan areas. It is not clear however whether the difference reflects a higher prevalence of drug misuse within the White population or a high representation of White misusers in treatment.

Figure 8.2: Clients in Treatment in the West Midlands by Ethnicity



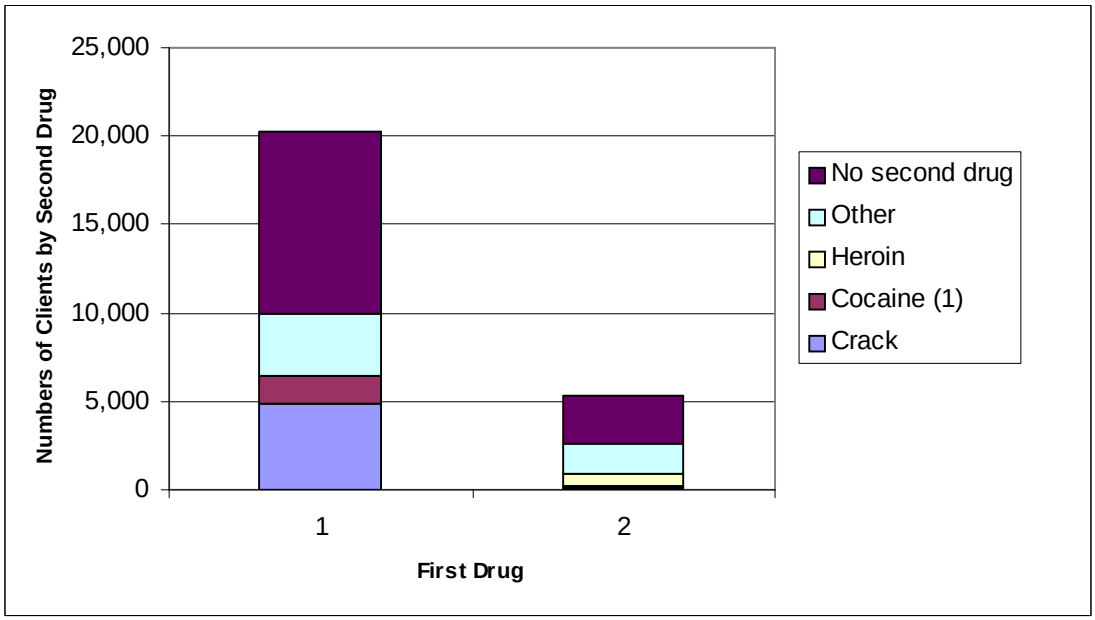
8.12 Drugs Misused

As a client presents at a treatment agency, the substances which are being misused are recorded as primary, secondary, or tertiary problem substances (referred to here as 'first', 'second', or 'third' drug'. The most commonly recorded substance within the category of first drug was heroin, accounting for four out of every five (79%) treatment episodes in the West Midlands in 2005/6. Crack accounted for a further 3% and cocaine for 2%.

Nearly half of all treatment episodes (49%) involved a second problem drug. Crack was recorded as the second drug in more than a third (39%) of cases, and cocaine in a further 14%. The single most common combination of drugs being misused was heroin with crack.

While about half (51%) of episodes for which heroin was recorded as the first drug did not involve any other substances, nearly one in every four (24%) involved crack as the second drug, and a further 8% recorded cocaine in the same way. Figure 8.3 shows the distribution of secondary substances within treatment episodes involving clients whose first drug is heroin, as well as those whose first drug was a substance other than heroin.

Figure 8.3: Patterns of Substances - First and Second Drug



Note for this Figure:

1) Substances in this category were recorded as either 'cocaine hydrochloride powder' or 'cocaine unspecified'

From April 2005, NDTMS started to record clients' third problem drug and in the case of 2,429 treatment episodes (9.5% of the total), three substances were recorded as being misused by the client. Among the third drugs recorded, cannabis (39% of episodes with a third drug recorded) and alcohol (14%) featured prominently. Among cases where the first two drugs recorded were heroin and crack, the most common third drugs were cannabis and benzodiazepines.

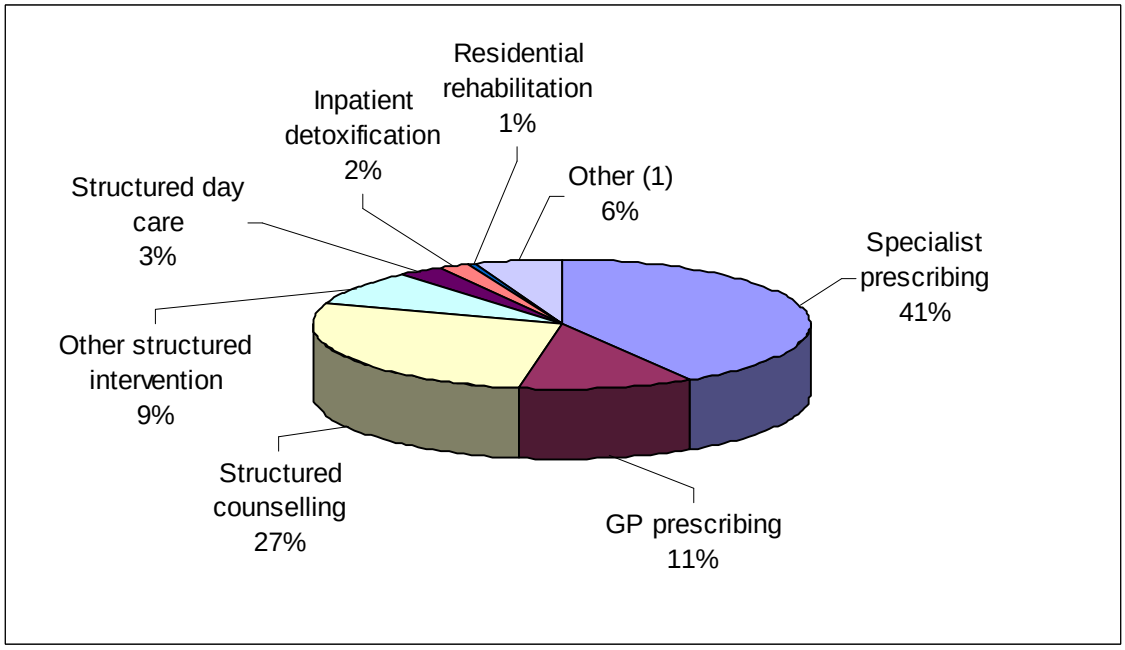
8.13 Routes by which Problem Drugs were being Administered

In the case of the primary problem substance, the route by which the drug is administered is also recorded. In most cases (59%) in the West Midlands the first drug was smoked. Less than a third (28%) were injected, while smaller proportions were taken orally (7%) or sniffed (3%). The largest group of injectors were heroin users (accounting for 97% of all episodes involving injectors). Heroin was however more often smoked (60%) than injected (35%). Crack was overwhelmingly smoked (82%), while other substances recorded as cocaine were either sniffed (62%) or smoked (32%).

8.14 Types of Treatment Provided

One way of representing the kinds of treatment which a client within the West Midlands' system is likely to receive is to plot the distribution of clients by the last treatment they received within the year – in effect a 'snap-shot' of the typical profile of the treatment types offered. Figure 8.4 shows such a representation.

Figure 8.4: Distribution of Treatment Types in the West Midlands



Note for this Figure:

1) Treatment recorded against modality codes for young people.

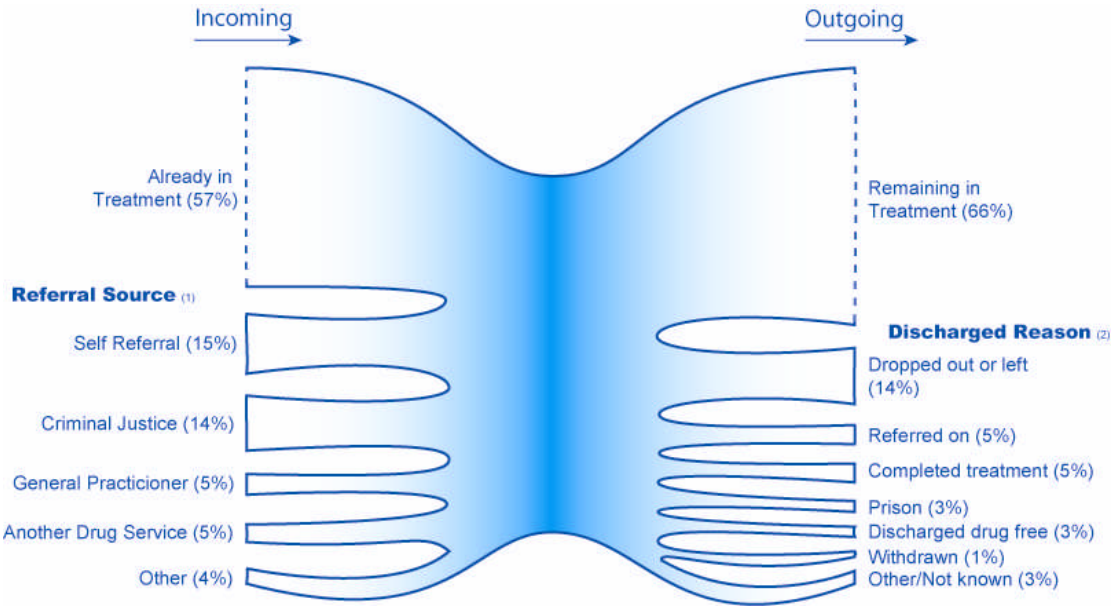
Prescribing services (either by general practitioners or specialist services) are the most common type of treatment, accounting for more than half (56%)(p). Other non-residential structured services (counselling, day care, or other interventions) accounted for a further 42%, while inpatient detoxification and residential rehabilitation made up only a small fraction (2%) of treatments.

8.15 Referral Sources and Treatment Outcomes

The largest single group of clients who entered the treatment system in 2005/6 were self-referred (15% of all clients treated), while other important sources were the criminal justice system (14%), and general practitioners (5%).

As Figure 8.5 illustrates, a substantial number (6,395) of clients had left the treatment system by the end of the year. Although we know that a proportion of these were discharged drug-free, a fuller assessment of the outcomes of the treatment system is a more complex challenge.

Figure 8.5: Clients Moving Into and Out of the Treatment System in the West Midlands During 2005/6

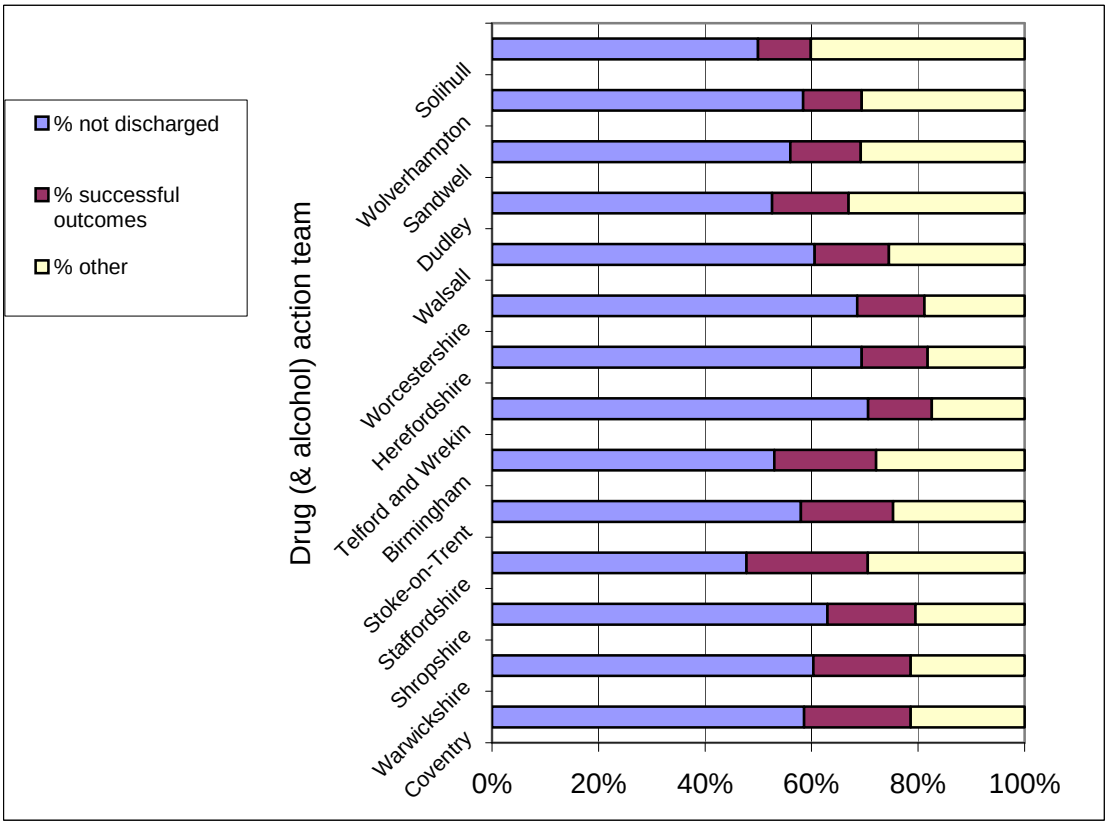


One question to consider is whether the success of treatment for an individual should only be assessed on the occasion of their discharge. Leaving aside what we know about clients often going through several treatment episodes (and therefore several discharges) before they become drug free, it is worth taking into account benefits which accrue earlier in the treatment process. These might include reduced health risks as well as levels of criminality. While these are less easy to measure, they might allow the assessment of the existing view that encouraging misusers into treatment is an important aim in itself.

For this reason, there is an intention to continue the development of the NDTMS in order to allow the collection of information about changes in clients' status in advance of discharge. However, our monitoring systems require some development before it will be easy to take into account clients' full journeys through the various typical stages of treatment.

In the meantime, Figure 8.6 is a necessarily narrow comparison of outcomes within West Midlands' D(A)ATs. Of the 25,569 episodes of treatment that were delivered (or partly delivered) in the region in 2005/6, fewer than half (11,043) had been discharged by year-end. For each D(A)AT area, Figure 8.6 represents the proportion of episodes which had not been discharged, as well as those which had been discharged with either successful or unsuccessful outcomes. For the purposes of this chart, successful outcomes are defined as being those which result in the client completing their treatment or being referred on for further treatment.

Figure 8.6: Outcomes of treatment episodes by drug (& alcohol) action team



Notes within chapter

(a) Some of the fourteen Drug Action Teams in the region also include the treatment of alcohol abuse within their remit.

(b)The NDTMS only records data from structured drug treatment providers, i.e. high threshold, Tier 3 and 4 services, as defined by the document 'Models of Care' (www.nta.nhs.uk/publications/Models_of_care.pdf). What are sometimes known as 'low threshold' interventions, such as syringe exchange and open access services are therefore not included.

(c) Agencies which are providing Tier 3 or Tier 4 treatment as defined by the NTA's Models of Care, and which are registered to provide data to NDTMS.

(d) The National Treatment Agency for Substance Misuse (NTA) was established in 2001 as a special health authority within the NHS to lead the performance management of local level partnerships including Drug (& Alcohol) Action Teams in the delivery of treatment for misuse.

(e) Poly users are clients who require treatment for more than one substance.

(f) 'Tackling Drugs to Build a Better Britain, The Government's Ten-Year Strategy for Tackling Drugs Misuse', April 1998. Available from: www.archive.official-documents.co.uk/document/cm39/3945/3945.htm

(g) More information about the Healthcare Commission's annual health check is available from: http://ratings2006.healthcarecommission.org.uk/Indicators_2006Nat/Downloads/PCTList.doc#_Toc147555320.

(h) More information on the DIP is available from www.drugs.gov.uk/drug-interventions-programme.

(i) Within NDTMS, treatment types are known as 'modalities' and are each recorded within one of the pre-specified categories. A client may experience more than one modality at a time.

(j) This total differs by a small amount from the 18,726 published by the NTA (at www.nta.nhs.uk/programme/national/perf_info_sept06/nos_in_tment_200506.pdf). This is principally because the lower total excludes records for which a D(A)AT of residence was absent.

(k) The British Crime Survey is commissioned annually by the Home Office to measure the amount of crime in England and Wales. It asks people about any crimes they have experienced in the last year, including those which are not reported to the police, and is based on over 50,000 interviews of people aged 16 or over. More information is available from: www.homeoffice.gov.uk/rds/bcs1.html.

(l) The National Treatment Agency has reported 18,726 individuals in contact with structured drug treatment services in the West Midlands in 2005/6, an increase from 15,905 in 2004/5.

(m) Local Drug (& Alcohol) Action Teams are responsible for identifying local needs and using central government and locally resourced funding to commission or purchase drug treatment to meet those needs. They are consortia of local organisations involved in the delivery of the Government's drugs strategy including health authorities, primary care trusts, police, probation, prison service and local authorities. The NTA is responsible for monitoring, and advising on how D(A)ATs spend their funding on treatment (more information is available from www.nta.nhs.uk/frameset.asp?u=http://www.nta.nhs.uk/about/regional.htm). D(A)AT areas in the West Midlands correspond to first level Local Authority boundaries (i.e. either Metropolitan District, County, or Unitary Authority)

(n) Bullock et al, 2004 (see Bibliography).

(o) For example, the Advisory Council on the Misuse of Drugs in 1998, as quoted by the Department of the Environment, Transport and the Regions. See www.local.odpm.gov.uk/research/beacyr2/1101.htm.

(p) Expressed as a proportion of individuals receiving adult modalities.

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Acknowledgements

This report would not have been possible without the support and assistance of a number of individuals. The NDTMS team in the West Midlands has provided invaluable guidance to the data. Jeanette Aston, Nick Cleverley, Sara Deakin, Jennie Lowdell, Anne Hartley, David Skidmore and Sharon Walton made useful comments during the drafting process. Jenny Hughes, Sarah Tranter and Sharon Walton contributed much of the design and layout. Notwithstanding this support, any errors are entirely the responsibility of the author.

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CHAPTER NINE: SMOKING AND SMOKING CESSATION: HEALTH EFECTS AND PREVALENCE TRENDS

THE SEARCH FOR DATA AND AN OVERVIEW OF RESOURCES

9.1 Introduction

Humans ignite tobacco and inhale the smoke in various ways (cigarettes, cigars, pipes, bidis), chew it (spit tobacco) or retain it in their mouth (snus), or take it intranasally. New tobacco inhalation devices are also being developed that might reduce the harm from inhaling smoke by heating it. However, cigarette smoking is the only common method of consumption in the UK. It is also the most harmful method of consumption(1).

Smoking is the single greatest cause of preventable disease and premature death in the UK(2). Although national trends in smoking prevalence have decreased over the past decades, a quarter of the population still smoke. At the current prevalence rate, about 106 000 people will continue to die each year due to smoking(3) . According to the most recent national survey 22% of the people in the West Midlands smoke(4).

Smoking cessation is high on the political agenda as the costs of smoking are high to the health of the general public and the NHS. In the White Paper "Smoking Kills" the government set a target for national smoking prevalence to reduce from 28% in 1996 to 24% or less by 2010. This target was reduced down to 21% by 2010 in the 2004 Public Service Agreement. Based on experience from other countries, we can expect the 1st of July smoking ban in public places will further reduce prevalence however it is the concern of the service and academic smoking cessation community that this effect doesn't fizzle out. There is still much work to be done to permanently reduce smoking prevalence and the associated illness and death in the UK.

Estimating prevalence at the level of PCT requires adequate sampling at a local level, and currently this requirement is not met by national surveys. Recently, data has become available at the level of PCT using synthetic estimates that are calculated using multilevel modelling based on pooled year-on-year national data(3).

This chapter will serve as an introduction to smoking, outlining the consequences for health and the benefits of cessation, current national prevalence data and local synthetic estimates. The chapter will also serve to signpost the help available to aid quitting.

9.2 Tobacco and health

The Consequences of Smoking Tobacco on Health

The causal link between smoking, ill health and death is firmly established(5). In the UK, smoking kills about 106 000 people per year(3) which is about 12 deaths per hour. It is responsible for half of the deaths of all those who continue to smoke, and a half of these deaths occur before the age of retirement (1;6;6). The relative risk for all-cause mortality for smokers is estimated at 2.3(7) for men and 1.8(8) for women. This means that people who smoke are about twice as likely to die at any given age. The size of the risk varies with the number of cigarettes smoked, from 1.79 among smokers of 1-15/day to 2.61 among smokers of 25 or more/day (9).

Smoking kills people primarily by inducing:

- Cardiovascular disease (ischaemic heart disease and stroke)
- Some cancers and
- Respiratory disease (primarily Chronic Obstructive Pulmonary Disease COPD).

A full list of the diseases that are associated with smoking, along with an appraisal of the evidence linking the exposure (smoking) to the outcome (the disease) is presented in the Surgeon General's Report (10).

The following table outlines the contribution of tobacco smoking to various fatal diseases(11)

Table 9.1: Proportion of deaths attributable to smoking (Based on deaths in England 1998-2002)(3)

Cause of death	Men		Women	
	Observed deaths	**% Deaths attributable to smoking**	**Observed deaths**	**% Deaths attributable to smoking**
Cancer				
Lung	16, 957	91	10,466	80
Throat and mouth	653	77	188	58
Oesophagus	3,575	70	2,110	72
Bladder	2,755	49	1,404	23
Kidney	1,509	42	942	7
Stomach	3,387	35	2,066	12
Pancreas	2,710	26	2,904	31
Unspecified site	4,536	33	4,738	7
Myeloid Leukaemia	1,034	19	927	12
Circulatory				
Ischaemic heart disease 35-54	3,676	57	767	63
Ischaemic heart disease 55-64	7,084	41	2,084	34
Ischaemic heart disease 65-74	15,337	27	7,454	22
Ischaemic heart disease 75+	30,470	10	35,977	8
Cerebrovascular disease 35-54	773	58	680	52
Cerebrovascular disease 55-64	1,298	33	967	35
Cerebrovascular disease 65-74	3,896	17	3,380	38
Cerebrovascular disease 75+	13,841	4	28,025	2
Aortic aneurysm	5,311	64	3,354	65
Myocardial degeneration	278	26	960	18
Atherosclerosis	416	22	754	17
Lung disease				
Chronic obstructive lung disease (COPD)	11,219	87	7,600	84
Pneumonia 35-64	542	34	324	51
Pneumonia 65+	6,377	24	9,752	15

Source: Health Development Agency The Smoking Epidemic in England (2004)

9.3 The Benefits of Smoking Cessation

There is strong evidence that stopping smoking, however late in life, can reduce risk of premature death and improve current and future health(12). The benefits to cessation begin immediately after cessation and extend for years, see table below.

Table 9.2: The benefits of smoking cessation

Time stopped	Benefits
20 minutes	Blood pressure and pulse return to normal. Circulation improves, especially to hands and feet.
8 hours	The oxygen level in your blood increases to a normal level. Chances of a heart attack start to fall
24 hours	Carbon monoxide leaves the body. The lungs start to clear out mucus and debris.
48 hours	Nicotine is no longer found in the body. Sense of taste and smell improve.
72 hours	Breathing becomes easier. Energy levels increase.
2-12 weeks	Circulation improves throughout the body. Walking and exercise become easier.
3-9 months	Breathing problems, coughing, shortness of breath, and wheezing improve. Lung efficiency increased by 5-10%
5 years	Risk of having a heart attack falls to about half that of a smoker.
10 years	Risk of lung cancer falls to around half that of a smoker. Risk of a heart attack falls to about the same as someone who has never smoked.

Source “Stop Smoking Start Living” produced by the Department of Health

The longitudinal study following a cohort of British doctors has enabled estimates to be made of life years gained when stopping smoking in different age categories (12). These are summarised below.

Table 9.3: Life years gained after quitting by age category

Age at stopping smoking	Years of life gained
25-34 years	10
35-44 years	9
45-54 years	6
55-64 years	3

Source: Doll at al 2004

We can make a calculation from this that for every decade smoked after the age of 40 years, people lose 3 years of life. In other words, each year of smoking over the age of 40 years loses a smoker 3.6 months, which emphasises the imperative to give up soon (1).

Pregnancy

Smoking is the most important modifiable risk factor for poor outcome in pregnancy. Smoking causes an increased risk of placenta previa, placental abruption, but lowers the incidence of pre-eclampsia. Smoking causes preterm delivery and fetal growth restriction. There is also some evidence that suggests that smoking increases the risk of miscarriage(13).

Stopping smoking reduces the incidence of preterm delivery and intrauterine growth restriction and interventions to help women stop have shown clear evidence of these benefits(14).

Smoking and pregnancy is further explored in chapter twelve.

9.4 The Smoking Epidemic in the UK

Tobacco was introduced to Europe at the end of the 15th century and became widely popular by the end of the 16th century. Lopez described four phases of a tobacco epidemic, a pattern which has emerged in several developed countries after the introduction of tobacco (15). The UK is in the fourth phase, where smoking becomes increasingly concentrated in the most disadvantaged sectors of society. Forty years ago, there was little association between smoking and disadvantage. It is becoming increasingly strong and this will continue unless specific public health actions are taken(1).

9.5 The Collection of Tobacco Use Data

National Smoking Data

(1) The General Household Survey (GHS) collects data annually from a selected sample of households in Great Britain. In the most recently published survey, conducted in 2005, 12,802 households/30 069 people participated (13 000 households were contacted to participate). Up until 2005, fieldwork for each survey has taken place during financial years. Fieldwork now takes place from January - December, and the 2005 GHS report includes data collected from April – December added to the last quarter of the 2004/5 survey (January – March 2005). The GHS reports smoking prevalence at a national level and to the level of the West Midlands as a whole. A link to the most recently published GHS section on smoking follows:

http://www.statistics.gov.uk/downloads/theme_compendia/GHS05/GHS2005_SmokingandDrinking_Report.pdf

(2) The National Statistics Omnibus Survey is smaller than the GHS, with a sample size of 1,800 adults contacted over the period of 1 month. The

Omnibus Survey is designed to be a vehicle for providing quick results from relatively short and simple sets of questions. Question modules can be added in for one month or kept as part of the survey over a few months. To date, eleven surveys of smoking-related behaviour and attitudes have been conducted as part of the Omnibus Survey, all of which have included data collected over a two-month period. The smoking-related behaviour and attitudes surveys take smoking prevalence questions from the GHS and also include unique questions about various aspects of smoking behaviour and attitudes. The report presents data at a national level and is not broken down to Government Office Region.

A link to the most recently published smoking-related behaviour and attitudes survey report follows:

http://www.statistics.gov.uk/downloads/theme_health/smoking2006.pdf

(3) The Health Survey for England (HSE) is a national private household survey commissioned by the Department of Health. The HSE has an annually repeating core accompanied by different topic modules each year that are repeated over a 5-year cycle. Smoking data is collected as part of the core survey. For the 2005 survey, 7,200 addresses were contacted to take part representing the general population and an additional 11,520 were contacted to create a boosted sample of people aged 65+. In total, 7,630 adults (16+) and 1,852 children took part in the survey from the general population sample and 2,673 adults aged 65+ and 1,142 children aged 2-15 years took part as part of the boosted sample. The sample used for the HSE is large enough to not only estimate national trends but also to produce estimates at the level of strategic health authority.

Links to the chapters of the full report of the 2005 survey and the updated trend tables can be found below:

http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/health-survey-for-england/health-survey-for-england-2005:-health-of-older-people-%5Bns%5D

http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/health-survey-for-england/health-survey-for-england--updating-of-trend-tables-to-include-2005-data

An additional set of raw smoking data is being collected by the smoking tool kit study (16). This is a longitudinal study collecting data on smoking and smoking cessation patterns in England in order to inform policy. Data is collected monthly and collection began in 2006. The data collected in this study varies slightly from the data collected by the annual surveys, possibly because respondents of the monthly surveys report a more accurate picture of their smoking behaviour. To find data collected by the smoking tool kit study click on the following link: www.smokinginengland.info

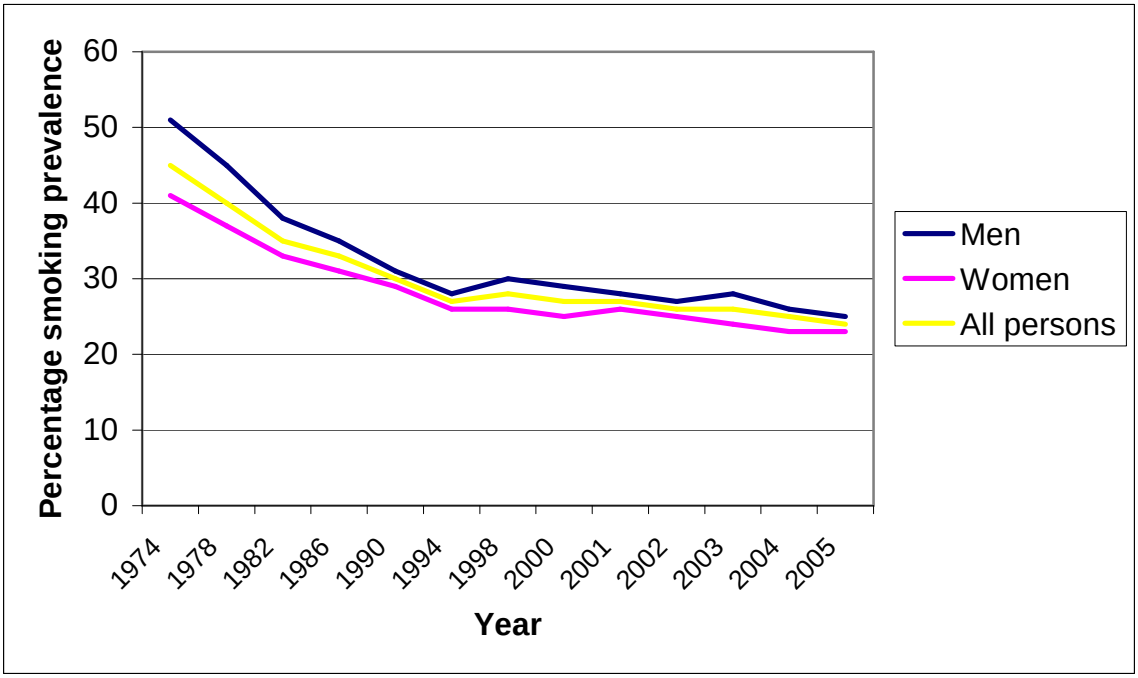
9.6 National Smoking Prevalence Trends

Population trends in smoking prevalence over time are dependant on the net effect of the number of people starting smoking, quitting and relapsing. Since the 1970s the net effect of these changes in behaviour has lead to a slow declining in smoking prevalence. Currently, overall prevalence is falling at around 0.4% per year (17).

Gender

More men are current smokers than women and this has been true since 1974, although the gap in prevalence has narrowed. According to the general household survey 2005, 25% of men and 23% of women were current smokers and overall smoking prevalence was 24%.

Figure 9.1: Smoking prevalence in Great Britain by gender 1974 to 2005



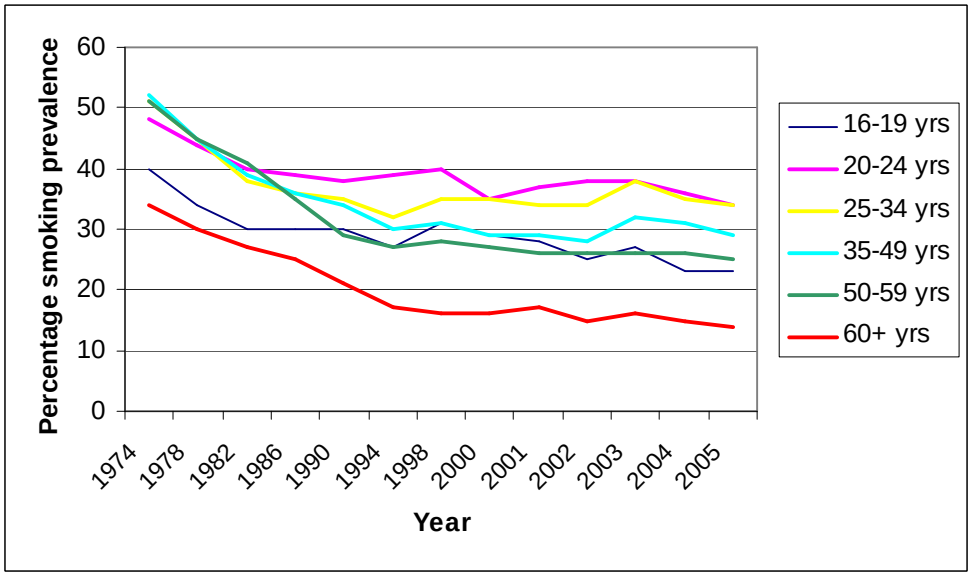
1974-1994 Unweighted data
1998-2005 Weighted data *(for non-responders)*

Source: GHS 2005

Age

Smoking prevalence is 0% till the age of 10-11 years, rises through adolescence to a peak in the early twenties, and then falls slowly with age. Although smoking prevalence has reduced in all age categories since 1974, the most marked reduction has occurred in the older age groups.

Figure 9.2: Percentage prevalence trends of smoking by age group in Great Britain 1974-2005



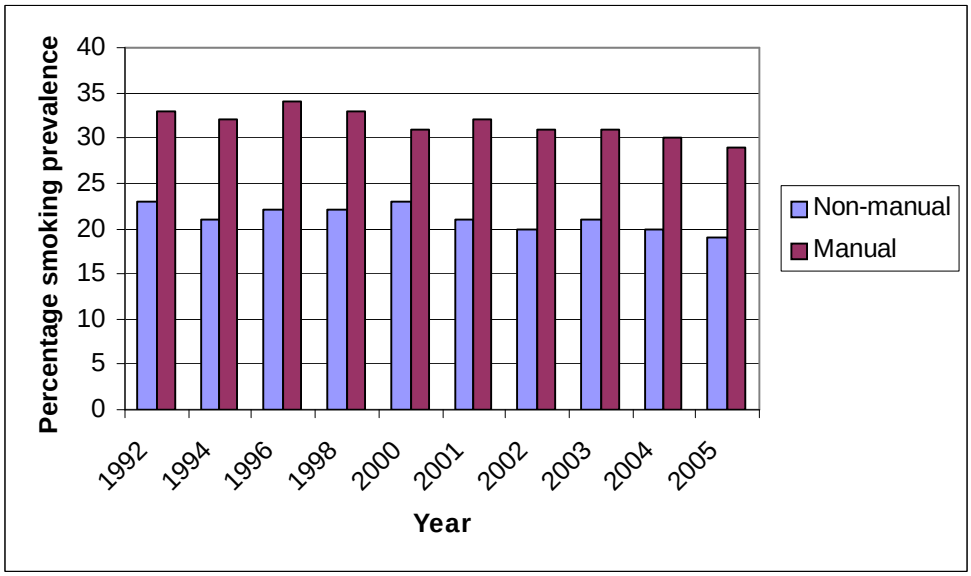
1974-1994 Unweighted data
1998-2005 Weighted data *(for non-responders)*

Source: GHS, 2005

Socio-Economic Status

The prevalence of smoking varies by social class with more people smoking in lower socio-economic groups. Smoking is a root cause of socio-economic inequalities in health. There is 10% difference in smoking prevalence between manual and non-manual workers and this has not changed much over the past 10-15 years. An estimated 21% of the socio-economic inequality in mortality in men and 11% in women could be eliminated if everyone stopped smoking (18;19).

Figure 9.3: Percentage prevalence of smoking by socio-economic status in Great Britain in 1992-2006



1992-1996 Unweighted data
1998-2005 Weighted data *(for non-responders)*

Source: GHS 2005

Action on Smoking and Health (ASH), a non-governmental campaigning organisation, has mapped smoking prevalence and deprivation by ward for each government office region in England. The maps can be found in the smoking and deprivation section of the following website. (www.ash.org.uk)

Ethnic Group

The prevalence of smoking varies by ethnic group, much more for women than for men (Table 9.4), where the prevalence of smoking is low among women from Asian ethnic backgrounds. However, the HABITS study shows that the prevalence of regular smoking among Asian girls in Year 11 (15 year olds) in South London was about 20%, similar to Black girls (22%), but lower than in white girls (36%)(20). If these data are followed nationally, the prevalence in Asian women will rise substantially over the next 30 years (1)

Table 9.4: Percentage prevalence of smoking by ethnic group and gender in Great Britain based on 2001-2005 data

	Men	Women	All
White			
White British	27	25	26
Other White	34	26	30
Mixed			
White and Black Caribbean	25	29	28
White and Black African	38	26	33
White and Asian	31	33	32
Other Mixed	39	26	31
Asian or Asian British			
Indian	17	4	10
Pakistani	25	6	16
Bangladeshi	45	7	26
Other Asian	26	9	17
Black or Black British			
Caribbean	31	19	24
African	18	5	11
Other Black	19	16	17
Chinese or other ethnic group			
Chinese	34	8	21
Other	33	19	27
General Population	27	24	25

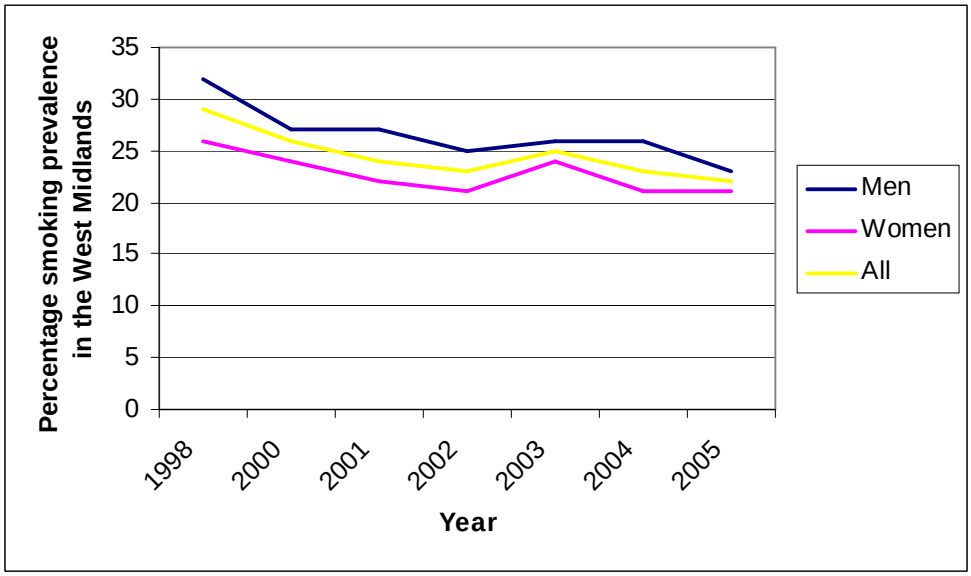
Source: General Household Survey, 2005

9.7 Smoking in the West Midlands

The GHS and HSE give robust estimates for smoking prevalence by various different groups for Great Britain and England, respectively. These data can also be used to estimate prevalence in the West Midlands as a whole but does not allow robust direct estimates at local authority and PCT level, as the sample size would be too small.

According to the GHS, percentage prevalence of total smokers for 2005 in the West Midlands is 22%. The range of percentage prevalence per region in 2005 was 29% (North East) - 22% (West Midlands, London and South East) (4). Smoking prevalence for the West Midlands estimated using data from the HSE is higher however, at 27%. The may be due to two reasons. Firstly, it is estimated from a merged data file of four runs of the HSE from 1998-2001 and smoking prevalence has come down since that time. Secondly, there may be sampling bias. Figure 9.4 shows how smoking prevalence has fallen since 1998 in the West Midlands.

Figure 9.4: Smoking prevalence in the West Midlands 1998 - 2005



1998-2005 Weighted data *(for non-responders)*

Source: GHS 2005

At PCT level, smoking prevalence estimates are synthesized rather than taken directly from survey data. Synthetic estimates are calculated using multilevel modelling and the latest available are based on the merged data file from four runs of the HSE (1998-2001). Using published relative risks for smokers and ex-smokers and the synthetic estimates of prevalence of these behaviours it is possible to generate smoking-attributable mortality by PCT. For full methodological explanation, see appendix 1 of the HAD report “

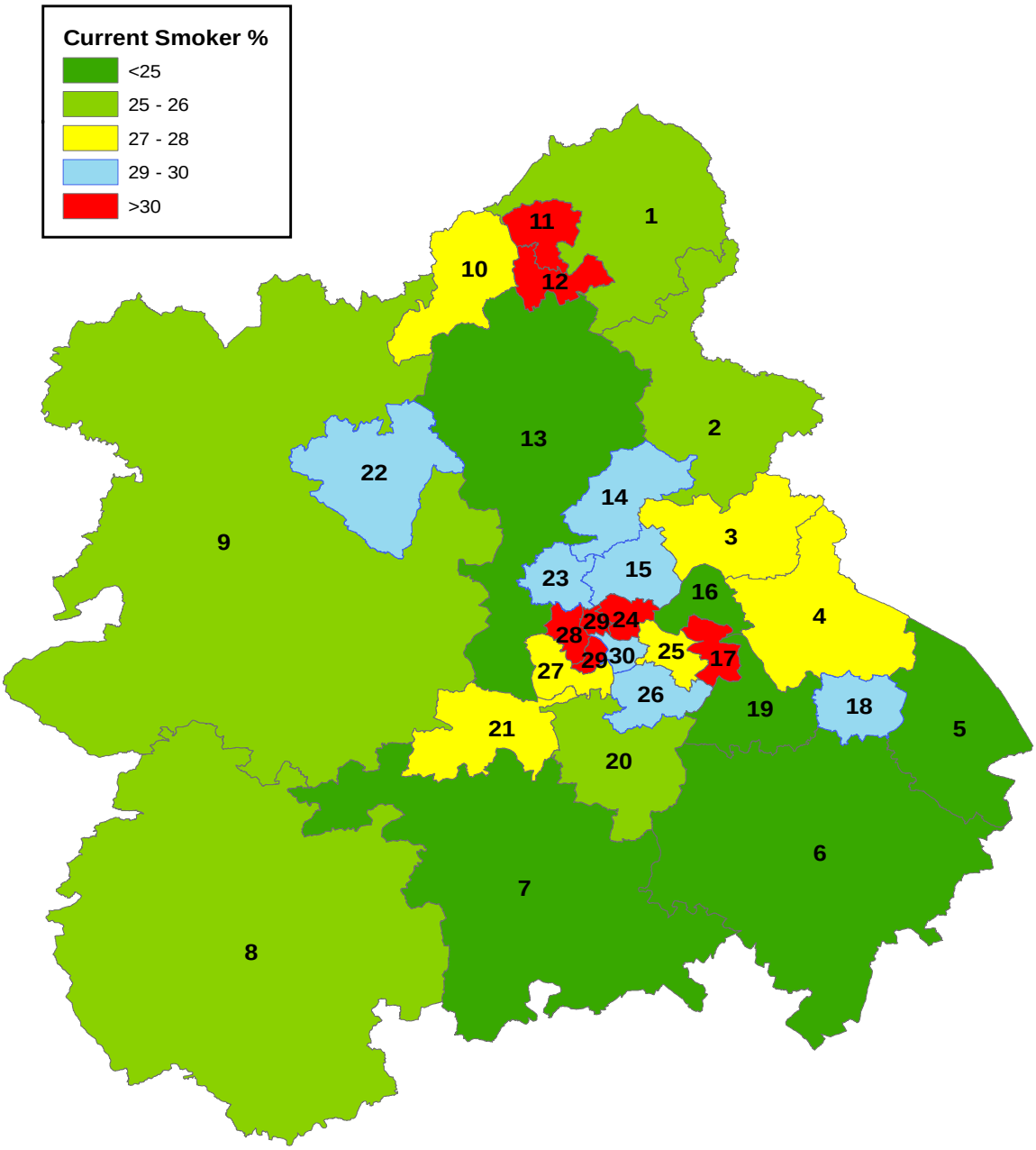
The Smoking Epidemic in England" (3) found at the following web address:

http://www.nice.org.uk/page.aspx?o=502811

There is geographical variation in smoking behaviour and smoking-related mortality across the West Midlands, according to the HSE merged data file. Prevalence of current smoking behaviour ranges from 20%-40% and smoking-related mortality in males ranges from 17-40% and in females from 30-49%. Note, current smoking behaviour predicts future disease as there is a delay between smoking and the onset of the disease. The smoking-related mortality figures used in this report have been calculated using current smoking behaviour prevalence so the proportion attributable to smoking may in fact be higher as smoking prevalence was slightly higher in previous years. Maps 9.1 and 9.2 show smoking and ex-smoking prevalence across the PCTs in the West Midlands and Maps 9.3 and 9.4 show smoking-attributable mortality for males and females and finally Map 9.5 for all persons (Data was collected before the recent change in health boundaries).

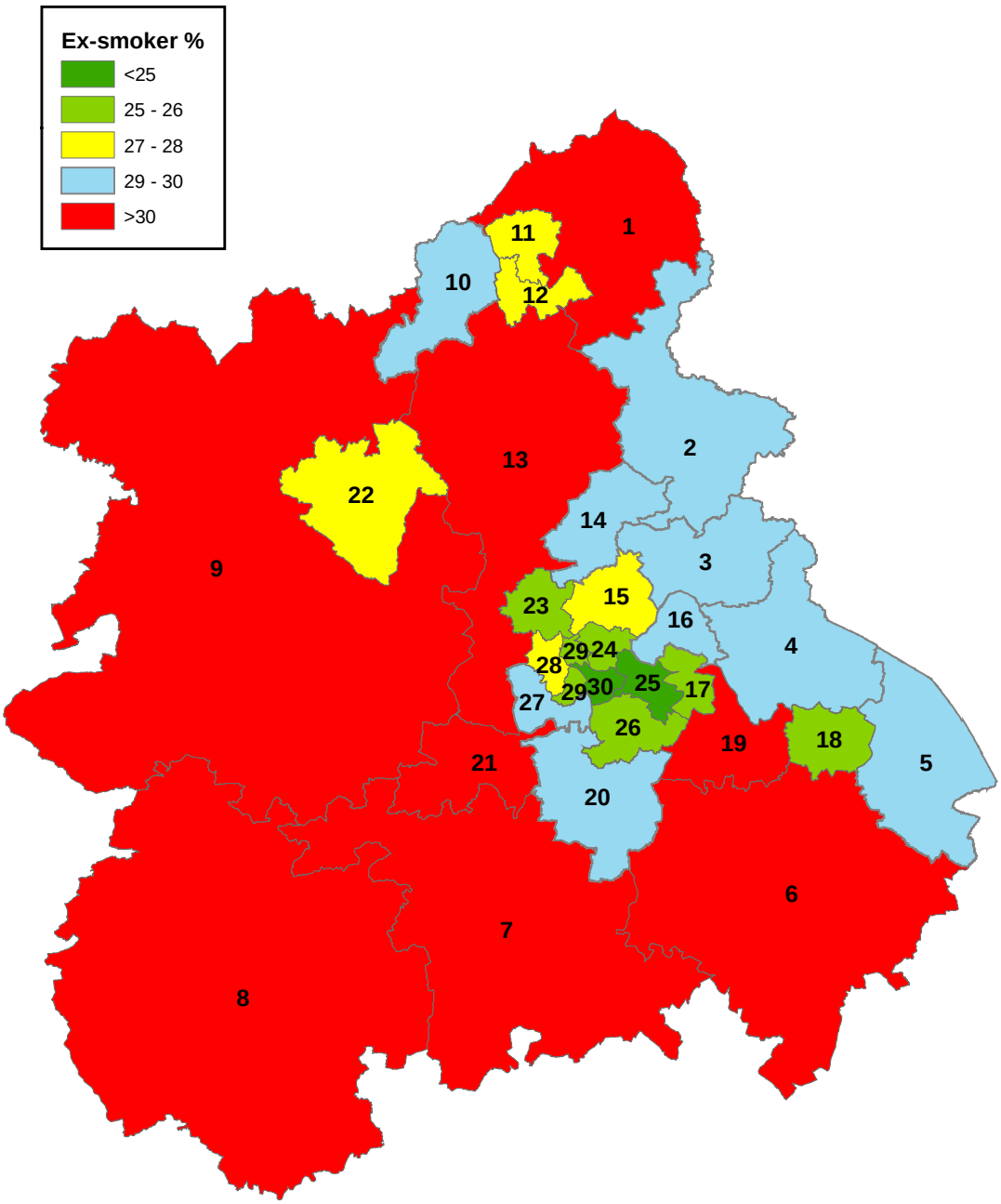
The following five maps are constructed using data from the HDA report: The smoking epidemic in England 2004.

Map 9.1: Prevalence of smoking by PCT in the West Midlands (1998-2001) (3), pre 2006 boundaries



Source: 2006 Primary Care Organisation Boundaries. Crown Copyright 2006. Crown copyright material is reproduced with the permission of the Controller of HMSO. Prepared by Gavin Rudge (2007).

Map 9.2: Prevalence of ex-smokers by PCT in the West Midlands (1998 - 2001) (3), pre 2006 boundaries



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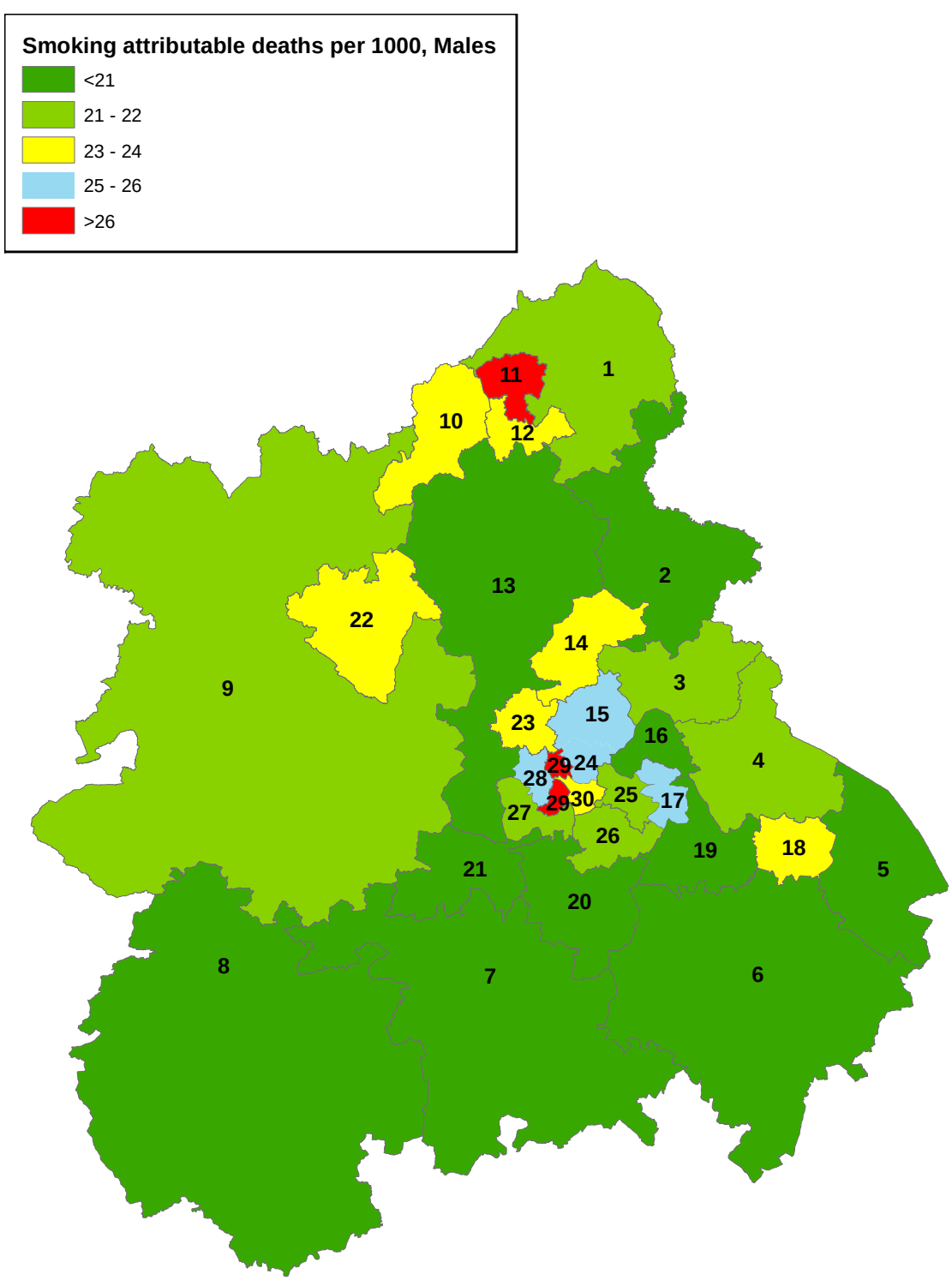
Map 9.3: Smoking attributable mortality in males by PCT in the West Midlands (1998-2004) (3), pre 2006 boundaries



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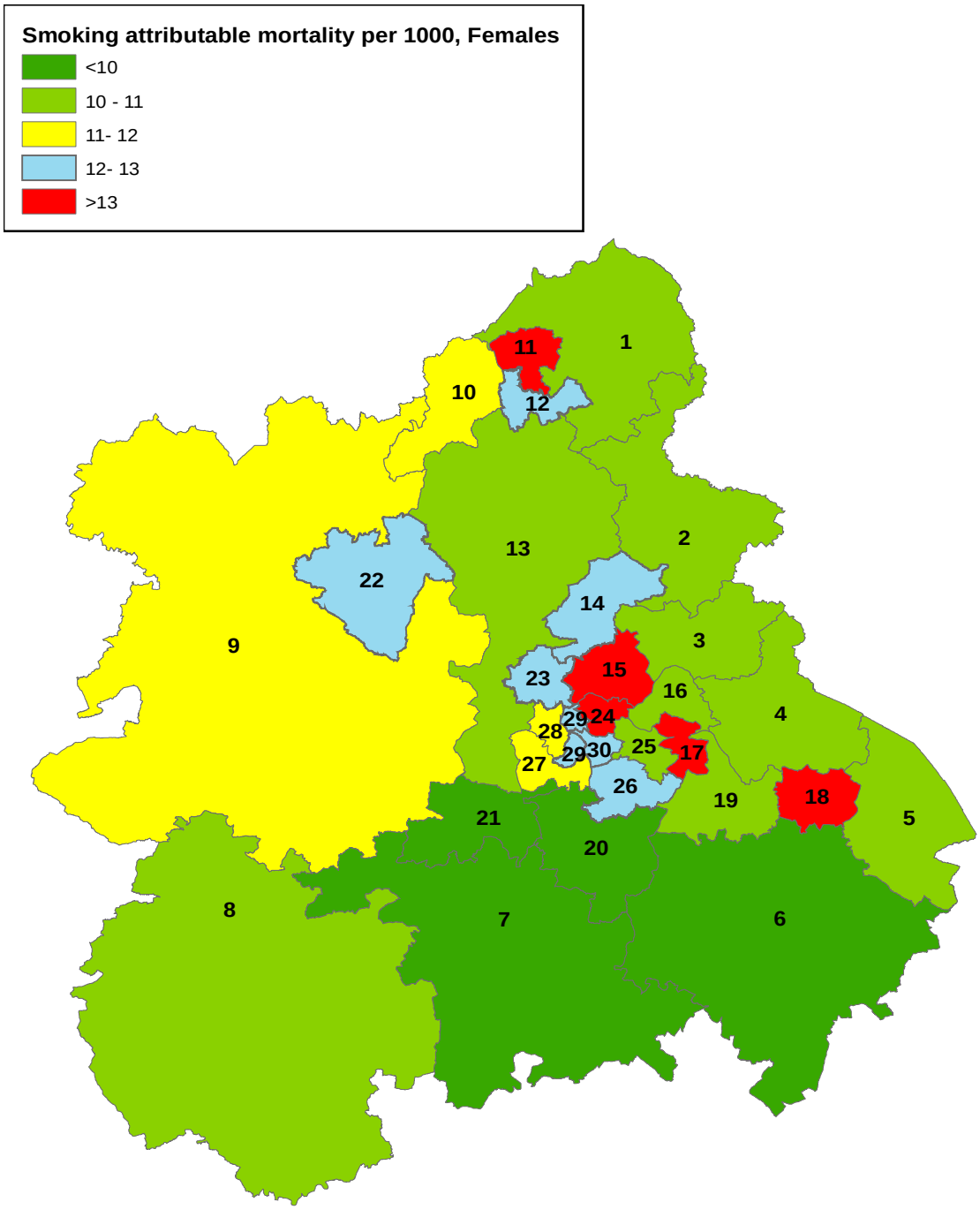
Map 9.4: Smoking attributable mortality in females by PCT in the West Midlands (1998-2004) (3), pre 2006 boundaries



Source: 2006 Primary Care Organisation Boundaries. Crown Copyright 2006. Crown Copyright material is reproduced with the permission of the Controller of HMSO. Prepared by Gavin Rudge (2007).

Map 9.5: Smoking attributable mortality in all persons by PCT in the West Midlands (1998-2004) (3), pre 2006 boundaries

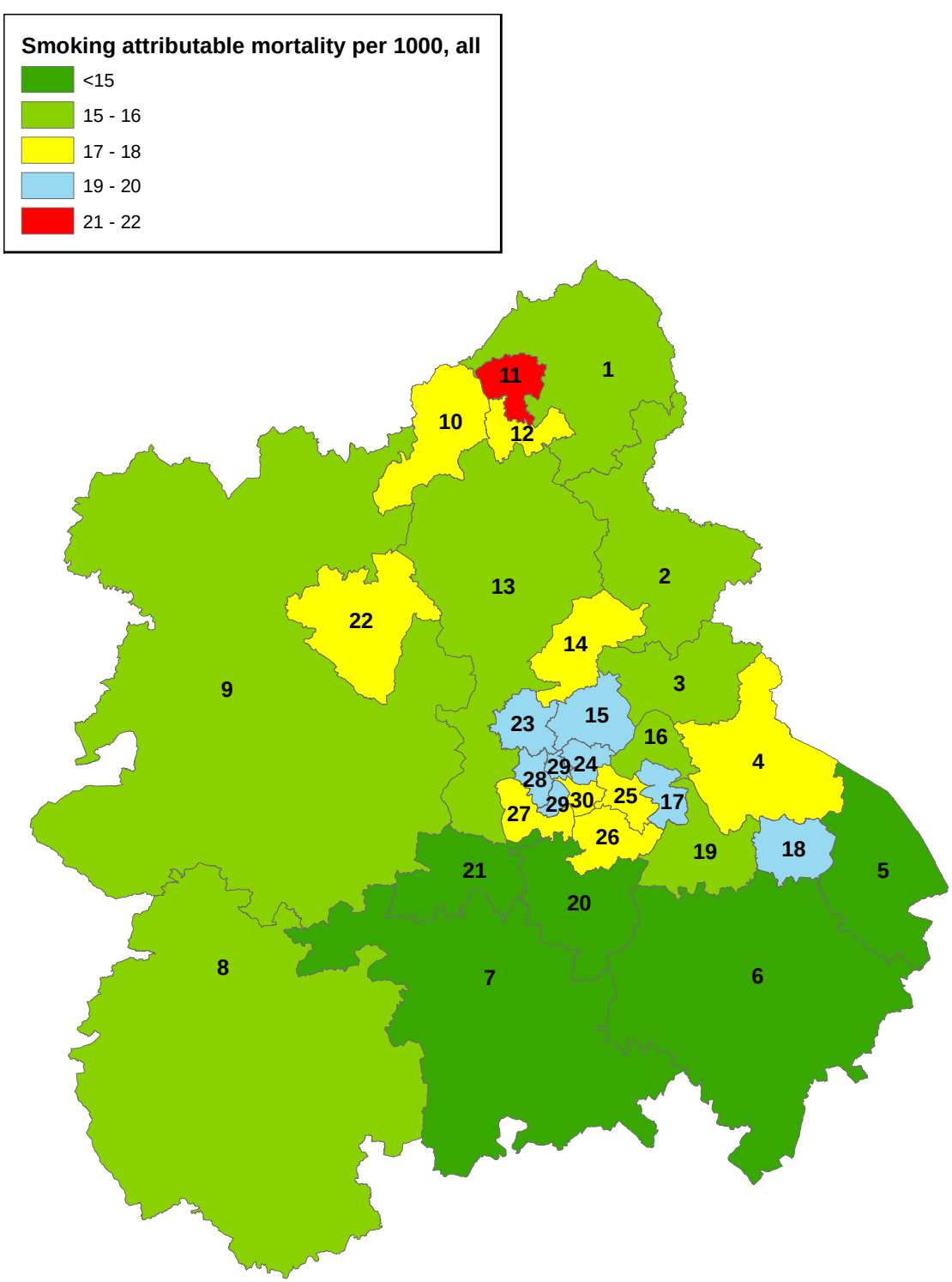


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Table 9.5: PCT Key for Maps 9.1–9.5, pre 2006 boundaries

1	Staffordshire Moorlands
2	East Staffordshire
3	Burntwood, Lichfield and Tamworth
4	North Warwickshire
5	Rugby
6	South Warwickshire
7	South Worcestershire
8	Herefordshire
9	Shropshire County
10	Newcastle under Lyme
11	North Stoke
12	South Stoke
13	South Western Staffordshire
14	Cannock Chase
15	Walsall Teaching
16	North Birmingham
17	Eastern Birmingham
18	Coventry
19	Solihull
20	Redditch & Bromsgrove
21	Wyre Forest
22	Telford and Wrekin
23	Wolverhampton City
24	Wednesbury & West Bromwich
25	Heart of Birmingham
26	South Birmingham
27	Dudley South
28	Dudley Beacon & Castle
29	Rowley Regis & Tipton
30	Oldbury & Smethwick

9.8 Smoking Cessation

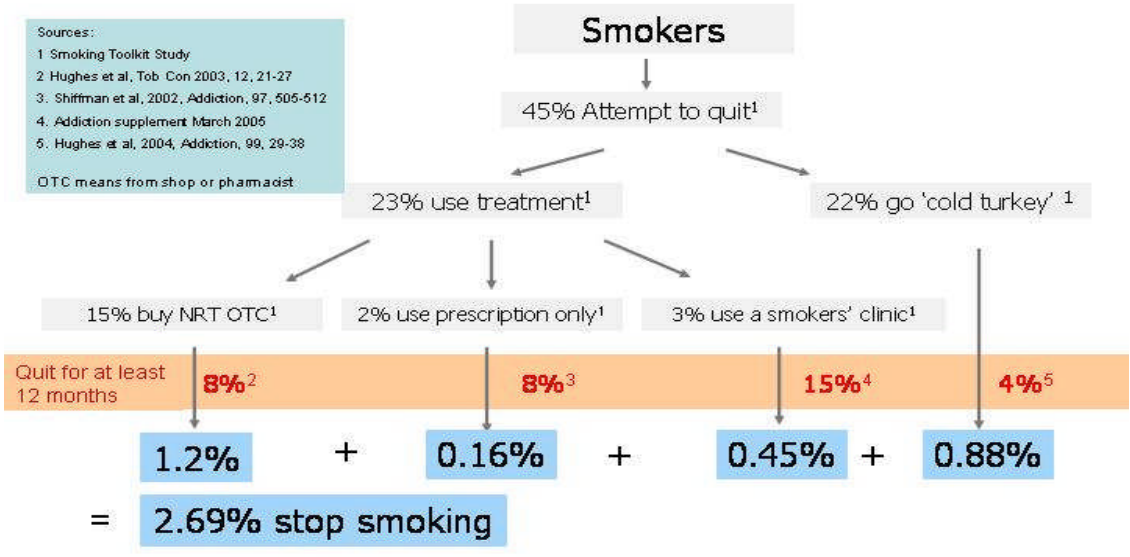
Prevalence of Wanting and Intending to Stop

Around 70% of current smokers want to stop smoking. This has remained fairly constant since 1998 when it was included in surveys(21). Most people give health and expense as the main reasons. 76% intend to stop smoking at some point, though only 12% intend to do so imminently (within a month), but more than half intend to do so in the next year, and nearly half expect not to be smoking in a year's time(21).

Prevalence and Incidence of Attempts to Stop

According to national surveys, 80% of the British smoking public have had at least one quit attempt during their time as a smoker, and about three fifths of those attempts have been in the last 5 years. (21). However, the Smoking Toolkit Study (22) found evidence that annual surveys underestimate the prevalence of attempts to stop smoking. Using different methods, the study estimates that 46% of smokers try to stop in a year, and that, on average, those that do make 1.7 attempts each. Thus, expressed as an incidence rate, the incidence of attempts at cessation is 78 attempts/100 smokers/year(23). The number of quit attempts and methods by which smokers attempt to quit is represented below. It is interesting to note that according to the smoking tool kit study only 3% of smokers use an NHS clinic to support them in their quit attempt. This is a very small percentage leading to only 0.45% of smokers stopping smoking. Using the NHS Stop Smoking Clinics quadruples a smoker's chance of successfully quitting which underlines the need to increase access.

Figure 9.5: Prevalence of attempts to quit and methods used from the Smoking Toolkit Study



Hardcore Smoking

There are a group of smokers that have not attempted to stop in the past year and do not want or intend to do so in the future, called hardcore smokers. About 16% of smokers are hardcore smokers (24). They tend to be older, more dependent, and not believe smoking is influencing their health, but whether these beliefs are causes or consequences of their continued heavy smoking is not clear and the stability of their status as hardcore over time is uncertain.

Relapse

Although there is a high prevalence of wanting to stop among the smoking population, and also a large proportion of smokers make an attempt at quitting, there is a high rate of relapse. In a systematic review of the literature, Hughes et al reported that 5% of smokers that make an untreated quit attempts remain continuously abstinent after 6 months and 4% do so after 12 months (25).

Aids for Quitting

There are a variety of aids available to the smoker to support their quit attempt and increase their chance of being successful. The majority of treatments work by supporting the quitter through the withdrawal period, as this is when they are most vulnerable to relapse. The newest treatment available is Varenicline (Champix^{TM}) a drug designed specifically to treat nicotine addiction. Varenicline is a partial agonist on $\alpha_4\beta_2$ nicotinic receptors in the brain and it is thought to work by counteracting withdrawal symptoms and reducing smoking satisfaction. Trials of Varenicline have shown it to be more effective than Nicotine Replacement Therapy or Bupropion, with 28.8% of people being successfully quit at 6 months (effect size for Varenicline at 6 months = 16.7%). Table 9.6 shows the effect size (difference in $\geq$6 months abstinence rate between intervention and control/placebo from pooled analysis).(11)

Table 9.6: Effects of smoking cessation interventions on successful quitting for 6 months or longer

Intervention	Effect size (%)	95% confidence interval
Brief opportunistic advice from a physician to stop	2	1-3
Face-to-face intensive behavioural support from a specialist	7	3-10
Face-to-face intensive behavioural support from a specialist with pregnant smokers	7	5-9
Face-to-face intensive behavioural support from a specialist with smokers admitted to hospital	4	0-8
Pro-active telephone counselling	2	1-4
Written self help materials	1	0-2
Nicotine gum + limited behavioural support	5	4-6
Nicotine gum + intensive behavioural support	8	6-10
Nicotine transdermal patch + limited behavioural support	5	4-7
Nicotine transdermal patch + intensive behavioural support	6	5-8
Nicotine nasal spray + intensive behavioural support	12	7-17
Nicotine inhalator + intensive behavioural support	8	4-12
Nicotine sublingual tablet + intensive behavioural support	8	1-14
Bupropion (300mg pd SR) + intensive behavioural support	9	5-14
Intensive behavioural support + NRT or Bupropion	13-19	-

Source: McEwan et al Manual of smoking cessation A guide for counsellors and practitioners Blackwell publishing ISBN 1-4051-3337-6

For more information on smoking, how to treat it and the evidence base for different treatments visit the following websites and BMJ article:

http://healthintelligence.bmj.com/hi/do/public-health/topics/content/smoking-cessation/index.html

http://www.doctorsandtobacco.org/index.php

Aveyard P, West R 2007 Managing smoking cessation BMJ 2007; 335:37-41 (7 July) http://www.bmj.com/cgi/content/full/335/7609/37

9.9 Smoking Cessation Support

NHS Local Stop Smoking Services

The Government has set up a comprehensive NHS Stop Smoking Service. Services are administered locally and Local Stop Smoking Services run various clinics in their area providing a combination of behavioural and pharmacological support (Nicotine Replacement Therapy (NRT), Bupropion (Zyban ®) and Varenacline (Champix™). Services are delivered in the format of group sessions or one to one, depending on the local circumstances and client's preferences. Most stop smoking advisers are nurses or pharmacists, and all have received training for their role. Smokers can self refer to the stop smoking service, or be referred on by any professional in charge of their care. Smoking Cessation Services record the number of people successfully quitting through the support of their service. To be counted as a success, a patient must be quit at four weeks which is validated by a CO reading. During the four weeks, a quitter is allowed small lapses for the first two weeks, but must not have a single puff for the remaining two. Table 9.7 compares the latest quitting figures available by PCT.

Table 9.7: Quitting figures for stop smoking services of PCTs in the West Midlands, April-September, 2006, pre- 2006 boundaries (old PCTs)

	Number setting a quit date	% Successfully quit at 4 weeks (self report)	Number Successfully quit per 100,000 of population
Burntwood, Lichfield and Tamworth	628	57	292
Cannock Chase	429	59	245
Coventry	2,200	45	404
Dudley Beacon & Castle	698	49	380
Dudley South	961	52	319
East Staffordshire	532	47	270
Eastern Birmingham	1,319	61	498
Heart of Birmingham	2,427	53	698
Herefordshire	977	47	314
Newcastle under Lyme	465	48	263
North Birmingham	486	61	226
North Stoke	848	45	387
North Warwickshire	895	43	266
Oldbury & Smethwick	639	43	400
Redditch & Bromsgrove	670	39	195
Rowley Regis & Tipton	659	38	343
Rugby	584	40	325
Shropshire County	1,201	67	343
Solihull	1,034	50	322
South Birmingham	1,183	53	214
South Stoke	966	39	378
South Warwickshire	820	46	182
South Western Staffordshire	680	54	226
South Worcestershire	950	52	213
Staffordshire Moorlands	516	43	251
Telford and Wrekin	1,094	69	596
Walsall Teaching	1,569	45	356
Wednesbury & West Bromwich	856	37	382
Wolverhampton City	1,568	41	339
Wyre Forest	138	64	105

Source: Statistics on NHS Stop Smoking Services in England, April to September 2006 The Information Centre

To access more information about the stop smoking services you can visit the following website: www.gosmokefree.co.uk

Non-Governmental Organisations

Additional to government services, there are also a series of NGOs that are heavily involved in issues surrounding tobacco control. Their websites are listed below:

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

http://www.ash.org.uk

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

http://www.cancerresearchuk.org/

http://www.gasp.org.uk/

www.smokinginengland.info

http://www.bhf.org.uk/smoking/

http://www.bupa.co.uk/health_information/asp/healthy_living/lifestyle/smoking/

9.10 Main Messages

(1) In the UK, smoking kills about 106 000 people per year which is more than 12 deaths per hour. It is responsible for half of the deaths of all those who continue to smoke, and a half of these deaths occur before the age of retirement.
(2) Stopping smoking at any time after any length of time of smoking will benefit health and if a person quits soon enough there is still chance for their risk of developing a fatal disease to reduce to that of a non-smoker.
(3) Smoking data is collected through national surveys, which give direct estimates of smoking prevalence for the nation and the West Midlands as a whole. According to the General Household Survey 2005, prevalence of smoking in the West Midlands was just below the national prevalence of 24%, at 22%.
(4) Nationally, you are most likely to smoke if you are male, between the ages of 20-34 years, have a manual job and are of a mixed ethnic background. The West Midlands is likely to mirror these trends.
(5) There are 78 attempts/100 smokers/year to quit smoking in the UK but the majority of those attempts fail.
(6) Unaided, 4-5 % of people will successfully quit.
(7) With help, the success rate increases. The NHS runs local smoking cessation clinics which quadruple the quit rate compared to the unaided quit rate. Smoking cessation services combine behavioural and pharmacological (NRT/Bupropion/Varenicline) support.
(8) There is still much work to be done to permanently reduce smoking prevalence, the story will not end with the enforcement of the 1st of July smoking ban in public places. The most effective way to give up is with help, and increase of access to NHS smoking cessation services is needed.

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CHAPTER TEN: FUNNEL PLOT COMPARISON OF CANCER INCIDENCE & MORTALITY RATES IN THE WEST MIDLANDS

10.1 Introduction

The West Midlands Cancer Intelligence Unit (WMCIU) was asked to investigate the incidence and mortality for primary care trusts (PCTs) within the region, with the aim of highlighting areas of possible concern. 'League tables' are a common technique used for comparing performance of health care providers. Ranking in this way does not allow for variation within an expected range, and even with the addition of confidence intervals spurious impressions can be created when interpreting these tables focus is naturally drawn to position. An alternative method making use of Funnel Plots has been suggested[1] to avoid ranking of PCTs whilst still highlighting outliers.

10.1.1 Method

Funnel plots have been produced using 2003-2005 incidence data from the WMCIU's Cancer Registration Database and Office of National Statistics population and mortality data. The cancer sites analysed in this chapter are:

- All malignant cancers (excluding non-melanoma skin cancer, ICD10 C00-C97 excl. C44)
- Breast (females only, ICD10 C50)
- Colorectal (ICD10 C18-C20)
- Lung (ICD10 C33-C34)
- Prostate (ICD10 C61)

Most non-melanoma skin cancers are detected early and are rarely thought to be life threatening. They are often diagnosed and treated on an outpatient basis and or in primary care, which leads to concerns about the completeness of registration. For these reasons non-melanoma skin cancers are often excluded from comparative analyses of cancer data.

Using the numbers diagnosed and the directly age standardised rate, the age adjusted population for each PCT was calculated (for new PCT boundaries as defined in 2006 see Map 1.1 in Chapter One). Directly European age standardised rates, on the y-axis, were plotted against the adjusted population on the x-axis. The average rates were calculated by the mean directly age standardised rate of the PCTs. Control limits were then calculated, assuming a Poisson distribution, at 2 and 3 standard deviations from the mean giving 95% and 99.8% control limits respectively. This method was based on a template available from Eastern Region Public Health Observatory[2].

10.1.2 Interpreting the Results

The figures show the incidence and mortality rates plotted against the population after adjustment for age, with the West Midlands average rate (solid centre line), and its 95% control limits (thin dotted lines) and 99.8% control limits (thick dotted lines). Each PCT in the West Midlands is represented by a coloured dot:

- Very High - when the PCT lies above the upper 99.8% control limit, and the PCT has a rate significantly higher than the regional rate.
- High – when the PCT lies between the upper 95% and upper 99.8% control limits, the PCT may have a rate that is significantly higher than the regional average.
- Within expected range – when the PCT lies within the 95% control limits then the PCT has a rate that is statistically consistent with the regional rate.
- Low – when the PCT lies between the lower 95% and lower 99.8% control limits, the PCT may have a rate that is significantly lower than the regional average.
- Very Low - when the PCT lies below the lower 99.8% control limit, then the PCT has a rate significantly lower than the regional rate.

10.2 Results

10.2.1 All Malignant Cancers (excluding non-melanoma skin cancer) (ICD10 C00-C97 excl. C44)

10.2.1a Males

Figures 10.1 and 10.2 show funnel plots comparing directly age standardised incidence and mortality rates for PCTs in the West Midlands for men diagnosed with / deaths from cancer in 2003-2005.

The incidence rate of all malignant cancers in men was significantly very high in South Birmingham PCT (459.7 per 100,000, exceeding the 99.8% control limit of the regional average (408.8 per 100,000). Birmingham East & North PCT's incidence rate (445.4 per 100,000) was also high, exceeding the 95% control limit.

The incidence rates of all malignant cancers in men were significantly very low for residents of Herefordshire and Warwickshire PCTs (340.6 and 374.8 per 100,000 respectively) in comparison to the West Midlands average. The incidence rate in North Staffordshire PCT (369.0 per 100,000) was also low, falling below the 95% control limit.

The mortality rate in Stoke on Trent PCT (281.3 per 100,000) exceeded the 95% control limit and therefore was significantly higher than the regional average. The mortality rate in this PCT was not consistent with the incidence rate, which was not statistically different from the West Midlands average.

A significantly very low mortality rate was found for all malignant cancers in men in Worcestershire PCT (196.8 per 100,000), below the lower 99.8% control limit of the regional average (222.2 per 100,000). Four PCTs; Herefordshire (187.7 per 100,000), Shropshire County (201.9 per 100,000), Solihull (191.5 per 100,000) and Warwickshire (206.7 per 100,000) PCTs, had mortality rates below the lower 95% control limit of the West Midlands average.

For the other PCTs incidence and mortality rates were within the control limits, showing they were within the expected variation around the regional averages.

Figure 10.1: Incidence of malignant cancers (excluding non-melanoma skin cancer) in men (2003-2005)

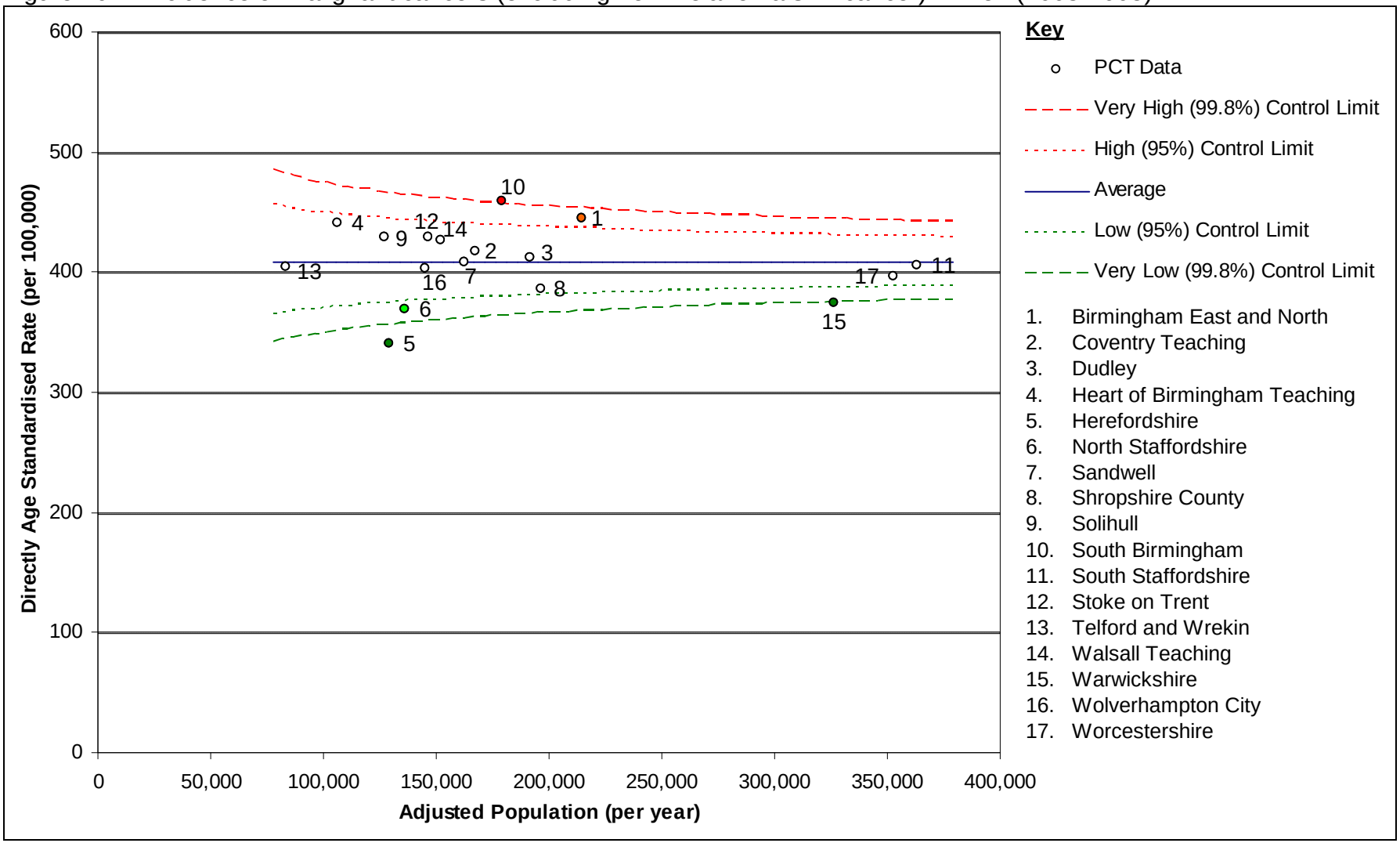
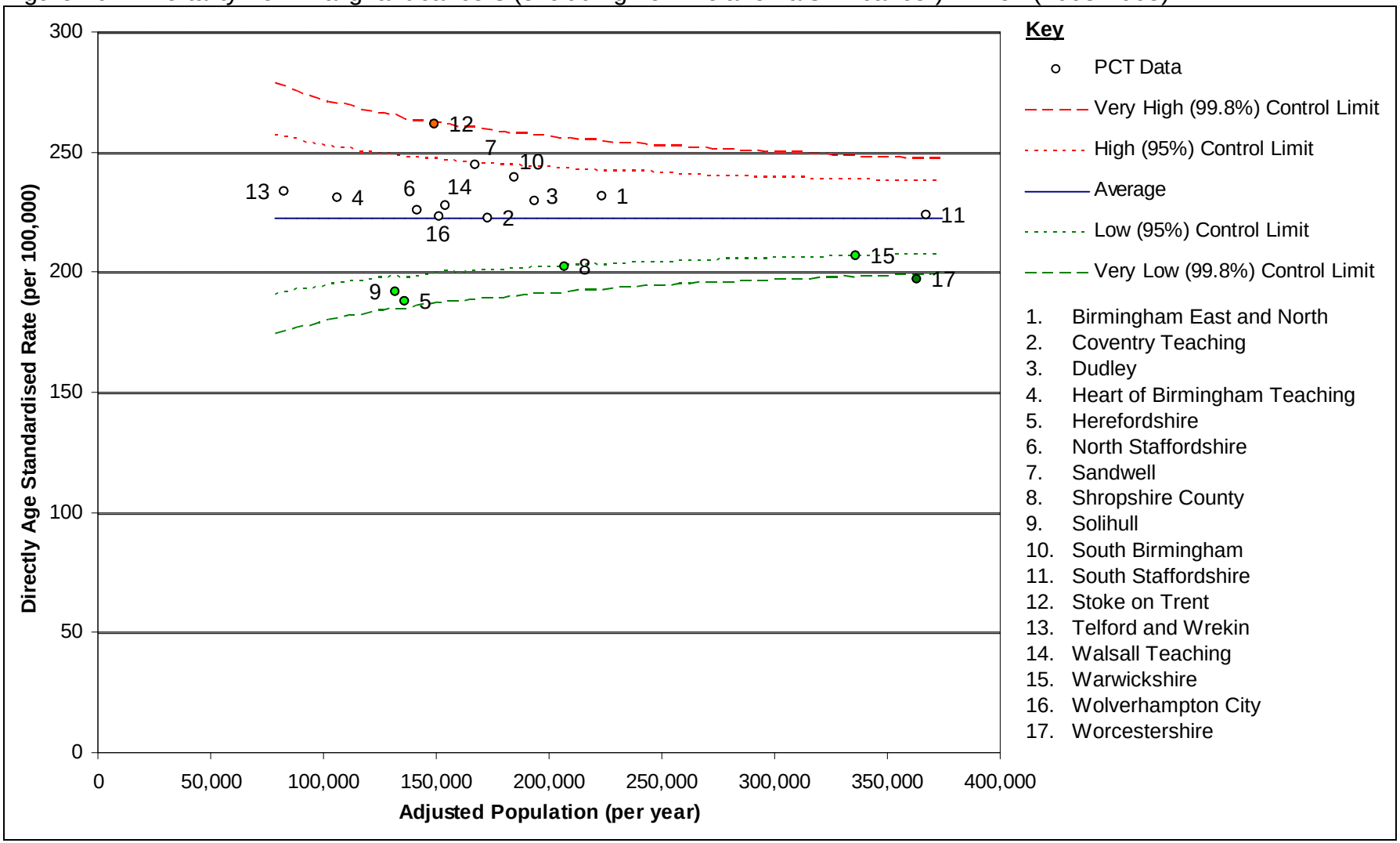


Figure 10.2: Mortality from malignant cancers (excluding non-melanoma skin cancer) in men (2003-2005)



10.2.1b Females

Similarly, figures 10.3 and 10.4 show funnel plots comparing the incidence and mortality rates for PCTs in the West Midlands for women diagnosed with / deaths from cancer in 2003-2005.

In women, none of the incidence and mortality rates for all malignant cancers exceeded the 99.8% control limits of the regional averages. However, in some instances rates did exceed the 95% control limits.

Stoke on Trent PCT had a significantly higher incidence rate (380.4 per 100,000) in comparison to the West Midlands average (344.0 per 100,000), whilst Heart of Birmingham Teaching PCT had a lower than expected incidence rate (303.9 per 100,000).

The mortality rate in Shropshire County PCT (138.0 per 100,000) was significantly lower than the regional average (153.1 per 100,000). The mortality rate in Stoke on Trent PCT (179.6 per 100,000), consistent with its incidence rate, was higher than the regional average, exceeding the upper 95% control limit.

Figure 10.3: Incidence of malignant cancers (excluding non-melanoma skin cancer) in women (2003-2005)

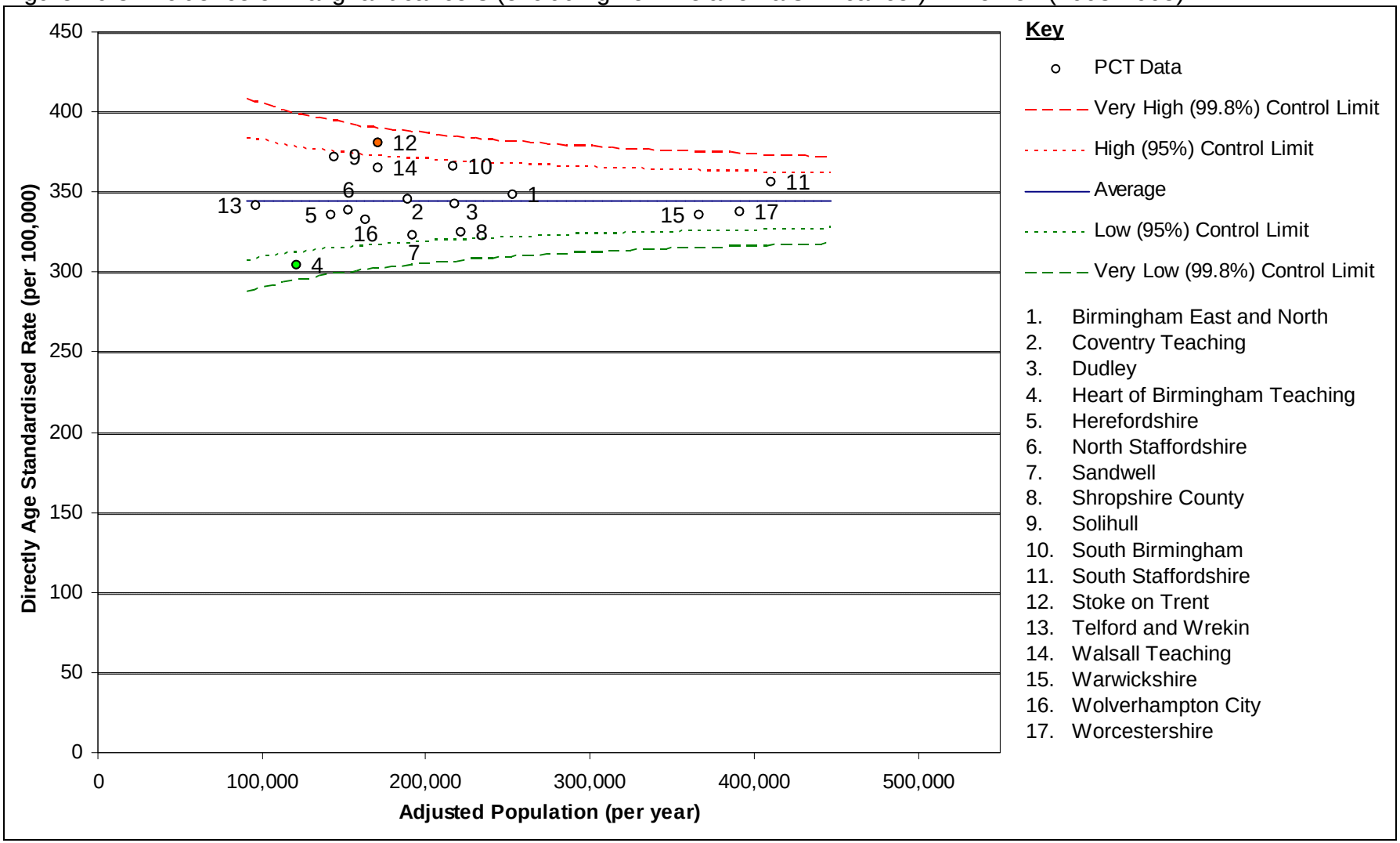
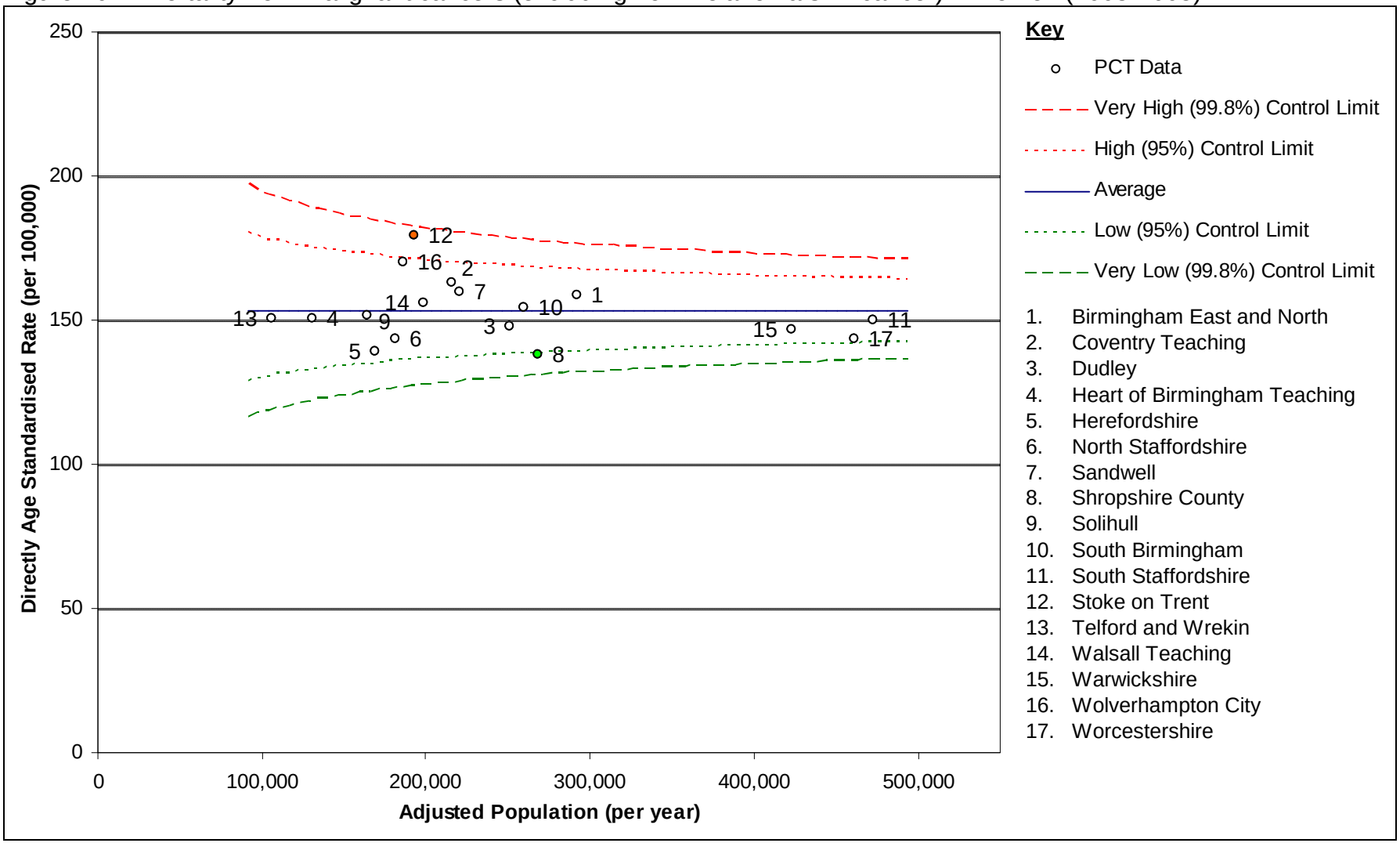


Figure 10.4: Mortality from malignant cancers (excluding non-melanoma skin cancer) in women (2003-2005)



10.2.2 Breast Cancer in Women (ICD10 C50)

Figures 10.5 and 10.6 show funnel plots comparing directly age standardised incidence and mortality rates for women diagnosed with / deaths from invasive breast cancer in 2003-2005.

Whilst Heart of Birmingham Teaching and Sandwell PCTs had lower incidence rates (93.7 and 104.7 per 100,000) at the 95% level than the West Midlands average (121.6 per 100,000), the mortality rates of these PCTs remained within the expected variation of the regional average.

None of the breast cancer mortality rates showed any statistical variation from the West Midlands average (28.5 per 100,000).

Figure 10.5: Incidence of invasive breast cancer in women (2003-2005)

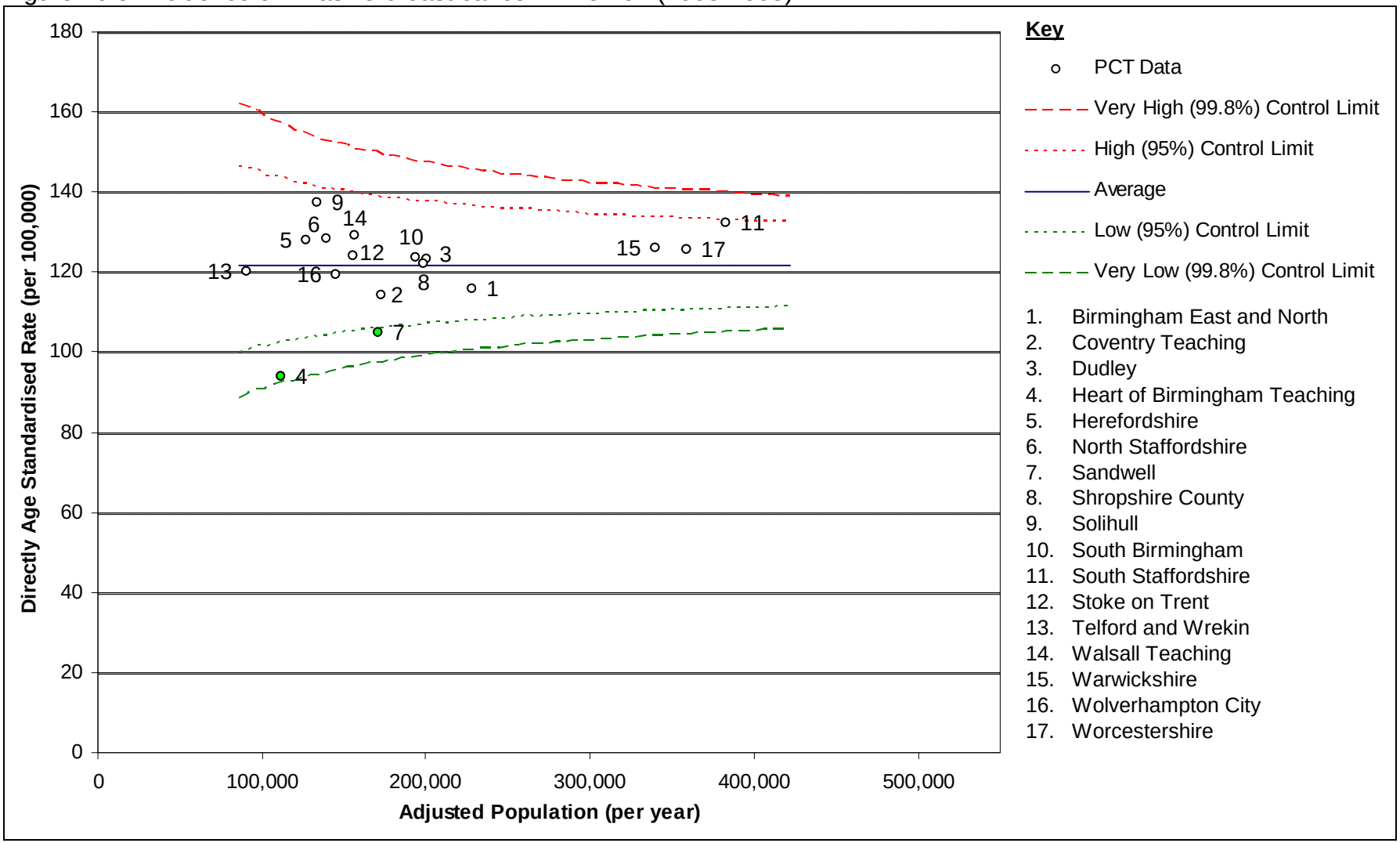
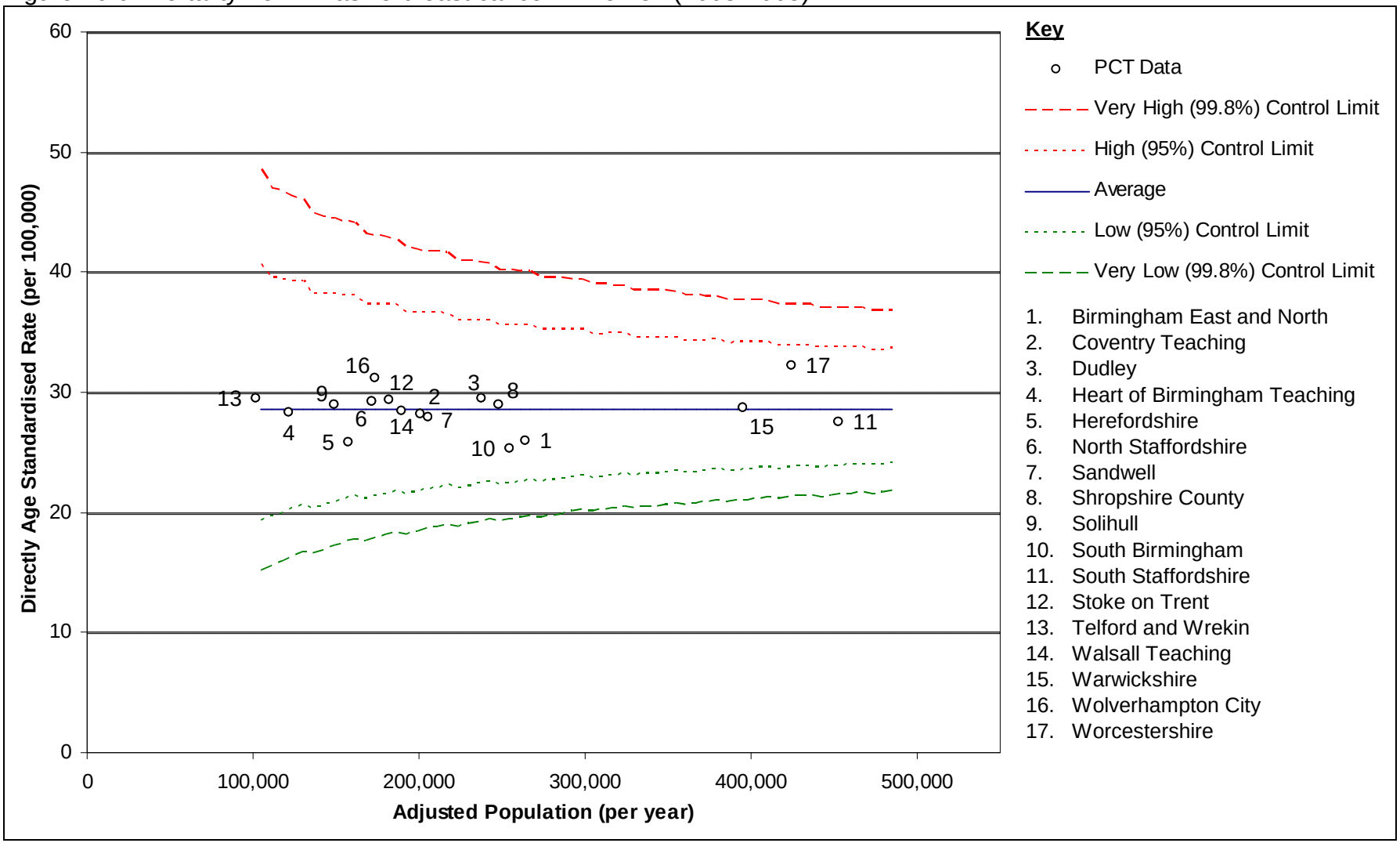


Figure 10.6: Mortality from invasive breast cancer in women (2003-2005)



10.2.3 Colorectal Cancer (ICD10 C18-C20)

10.2.3a Males

Figures 10.7 and 10.8 show funnel plots comparing directly age standardised incidence and mortality rates for PCTs in the West Midlands for men diagnosed with / deaths from colorectal cancer in 2003-2005.

For all PCTs both the incidence and mortality rates for colorectal cancer in men remained within the expected variation of the West Midlands averages (incidence: 58.3 per 100,000; mortality: 24.1 per 100,000).

Figure 10.7: Incidence of colorectal cancer in men (2003-2005)

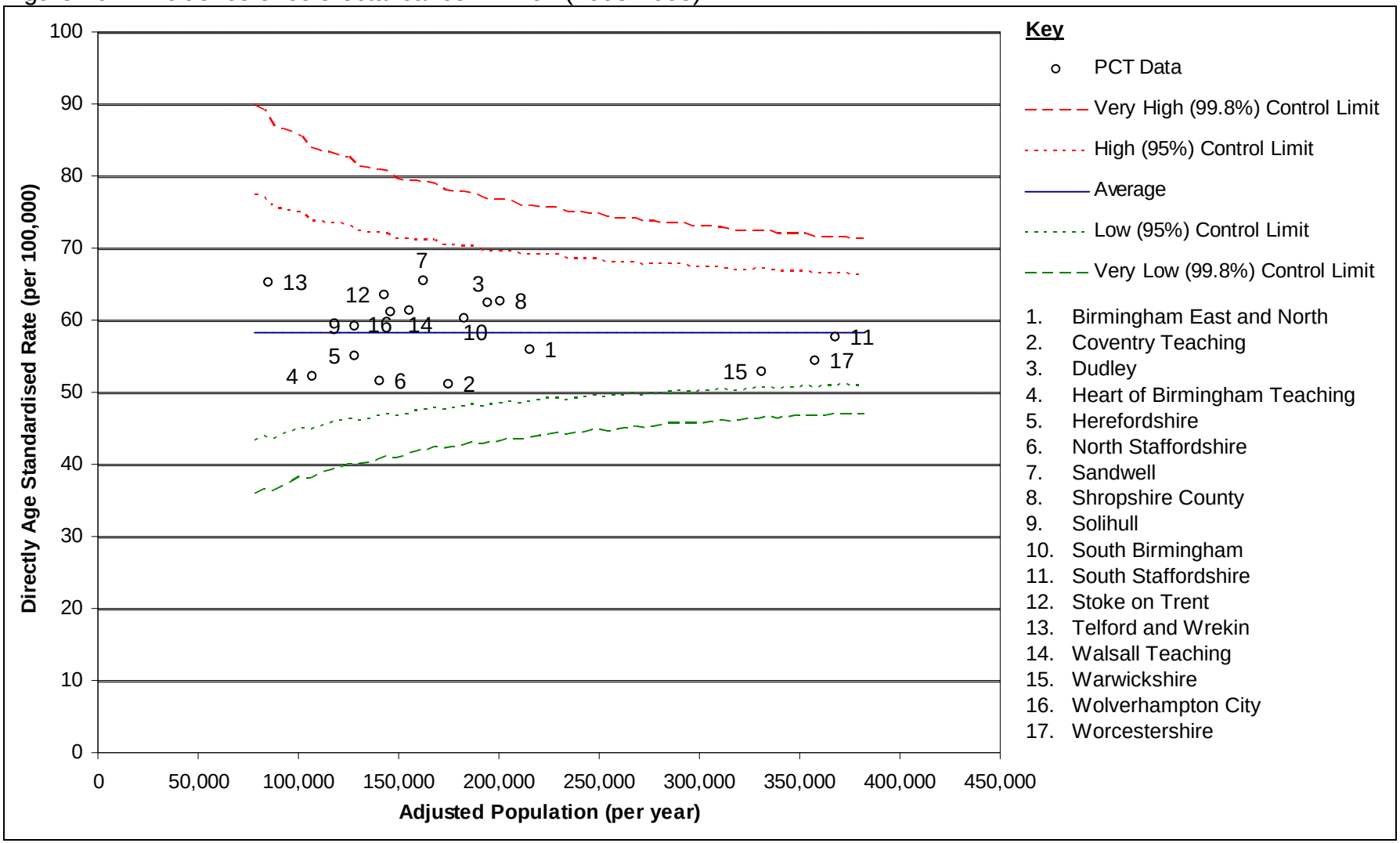
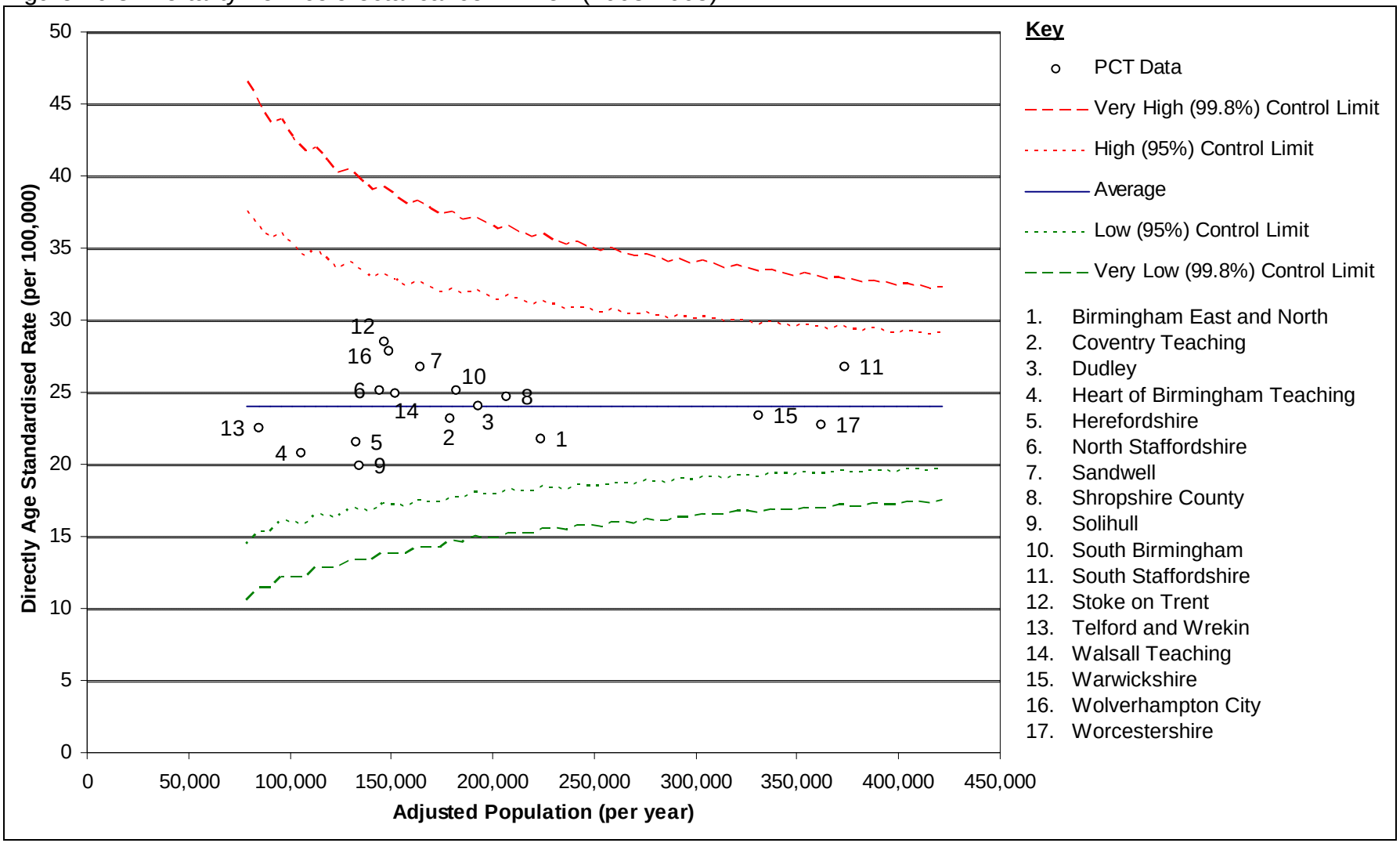


Figure 10.8: Mortality from colorectal cancer in men (2003-2005)



10.2.3b Females

Corresponding figures, for females diagnosed with / deaths from colorectal cancer in 2003-2005, are shown in Figures 10.9 and 10.10.

Whilst the incidence rate of female colorectal cancer in Stoke on Trent PCT was not statistically different from the regional average, the mortality rate (21.4 per 100,000) was found to be higher than the regional average (13.7 per 100,000), exceeding the 95% control limit.

Both Heart of Birmingham Teaching and Wolverhampton City PCTs had significantly lower incidence rates of colorectal cancer (23.2 and 25.2 per 100,000 respectively); in comparison to the West Midlands average (32.9 per 100,000). However, the mortality rates for these PCTs were both within the variation expected of the regional average

All of the other PCTs were within the control limits for both incidence and mortality rates, indicating these were not statistically significantly different from the West Midlands averages.

Figure 10.9: Incidence of colorectal cancer in women (2003-2005)

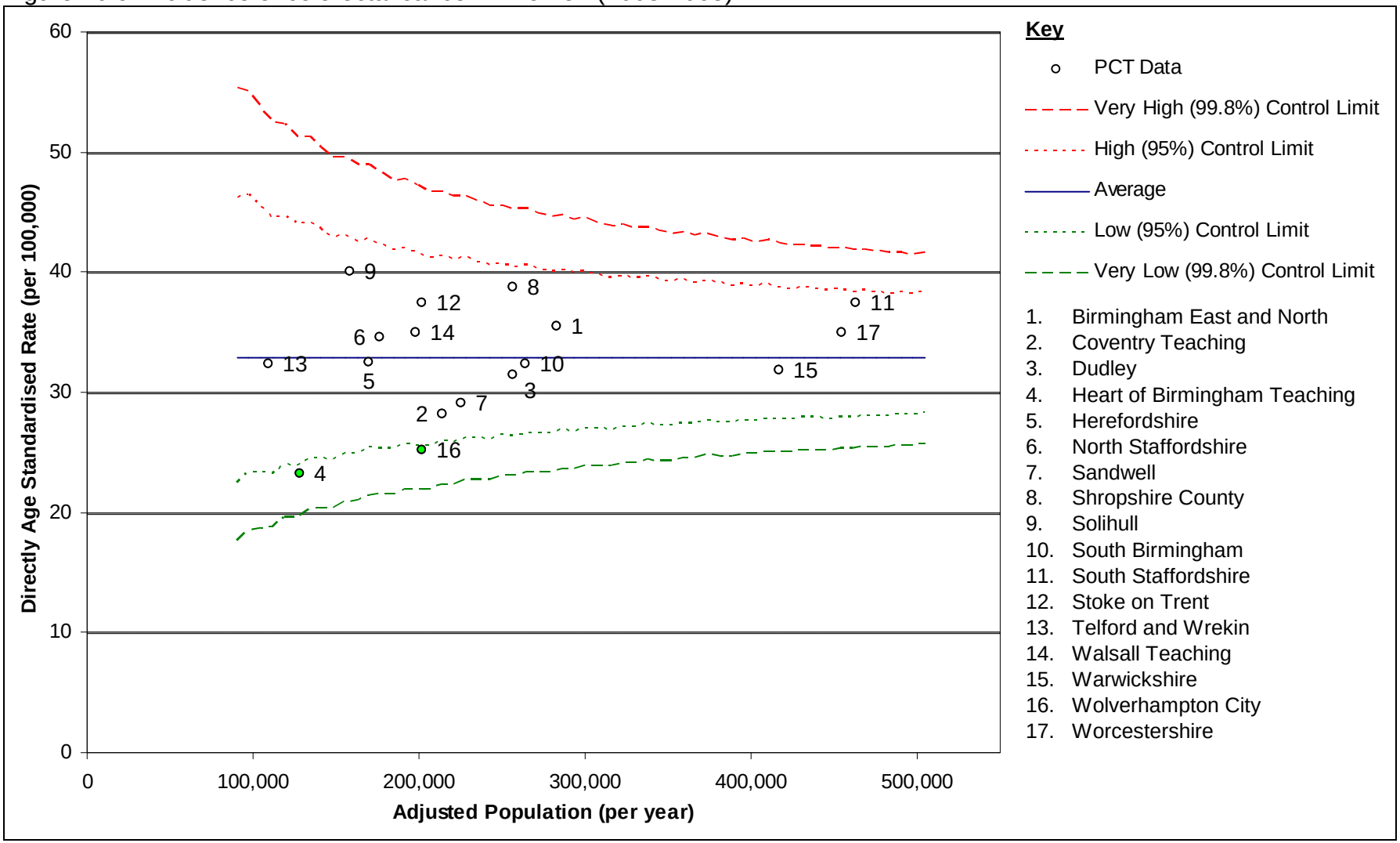
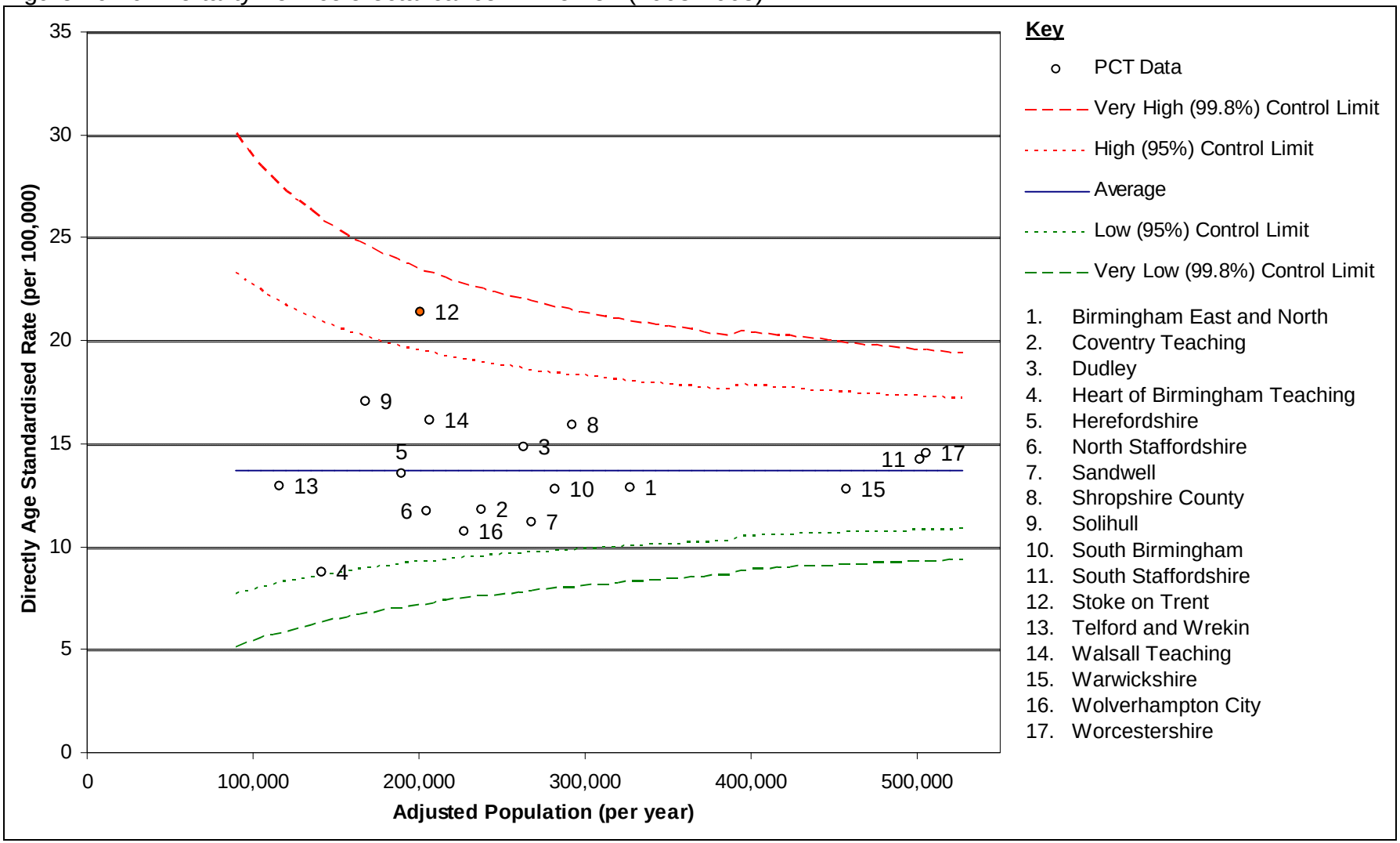


Figure 10.10: Mortality from colorectal cancer in women (2003-2005)



10.2.4 Lung (ICD10 C33-C34)

10.2.4a Males

Figures 10.11 and 10.12 show funnel plots comparing directly age standardised incidence and mortality rates for PCTs in the West Midlands for men diagnosed with / deaths from lung cancer in 2003-2005.

The incidence rate of lung cancers in men in Stoke on Trent PCT (85.4 per 100,000) was significantly very high in comparison to the regional average (62.4 per 100,000), exceeding the 99.8% control limit. Incidence in Sandwell PCT (78.4 per 100,000) was also high, exceeding the 95% control limit. Consistent with these lung cancer incidence rates, mortality rates in men were found to be higher than the West Midlands average (54.7 per 100,000) in Sandwell PCT, with a rate of 69.0 per 100,000 and Stoke on Trent PCT with a rate of 73.8 per 100,000, both exceeding the upper 95% control limit.

Birmingham East & North PCT had a high incidence rate exceeding the 95% control limit, although the mortality rate of this PCT was within the expected variation of the regional average.

In Herefordshire, Warwickshire and Worcestershire PCTs, the lung cancer incidence rates (34.2, 48.3 and 50.4 per 100,000 respectively) in men were significantly lower than the West Midlands average. Mortality rates in both Herefordshire and Worcestershire PCTs (33.7 and 43.5 per 100,000 respectively) were very low and Warwickshire PCTs rate (45.1 per 100,000) was also low.

Shropshire County and Solihull PCTs had incidence rates below the 95% control limit (48.3 and 49.6 per 100,000 respectively). As might be expected from their incidence rates, mortality rates for both of these PCTs (43.1 and 40.9 per 100,000 respectively) were also significantly lower than the regional average.

Whilst the incidence rate for South Staffordshire PCT was not significantly different to the regional average, the mortality rate of 47.5 per 100,000 was below the 95% control limit of the West Midlands average.

Figure 10.11: Incidence of lung cancer in men (2003-2005)

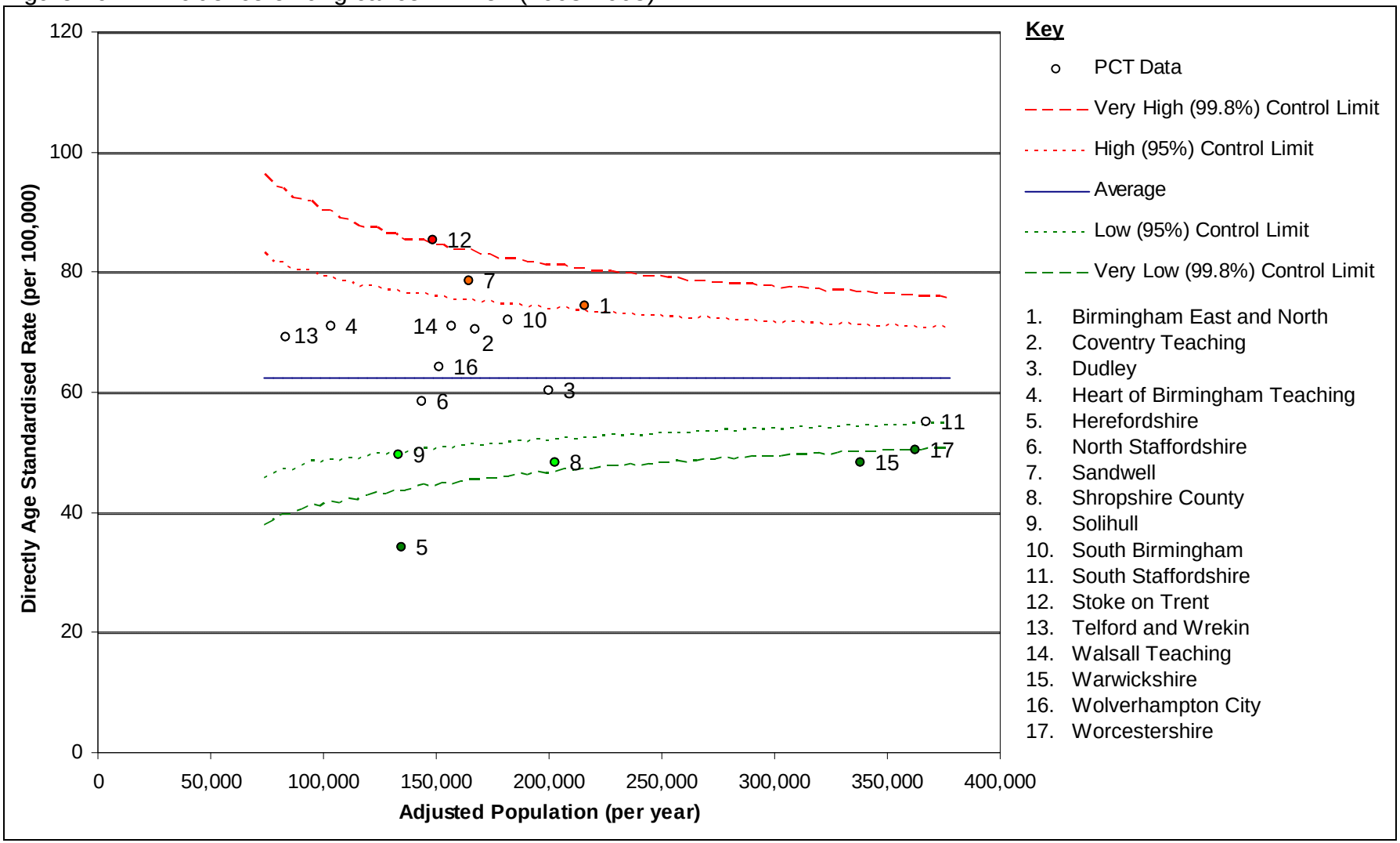
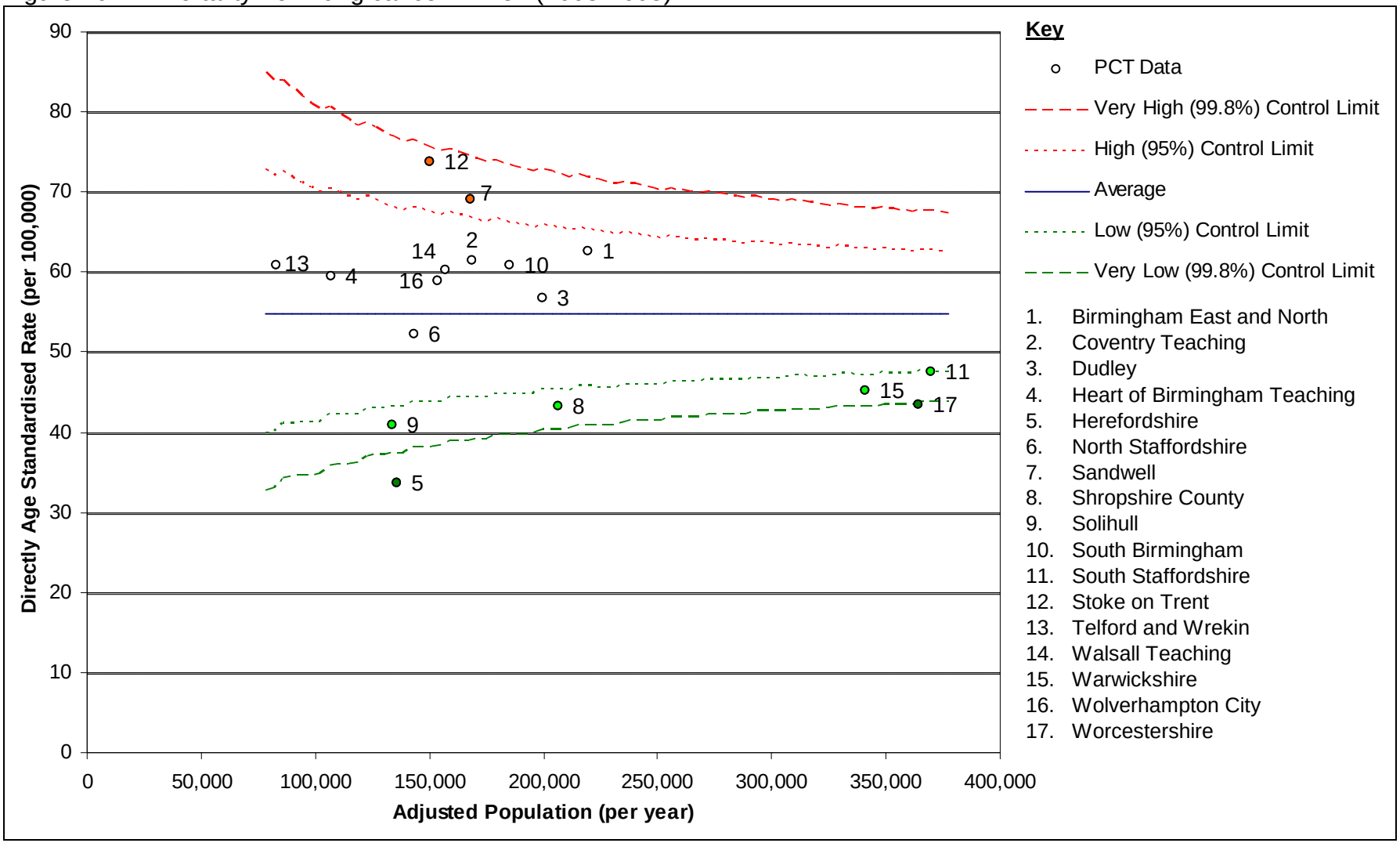


Figure 10.12: Mortality from lung cancer in men (2003-2005)



10.2.4b Females

Figures 10.13 and 10.14 show funnel plots comparing directly age standardised incidence and mortality rates for PCTs in the West Midlands for women diagnosed with / deaths from lung cancer in 2003-2005.

The mortality rate in Birmingham East & North PCT (33.2 per 100,000) was significantly higher than the regional average (26.4 per 100,000), exceeding the 95% control limit. This corresponded with the incidence rate observed in this PCT (39.9 per 100,000) also being above the 95% control limit of the West Midlands average (31.7 per 100,000).

The incidence rates of 40.7 per 100,000 in South Birmingham PCT and 41.0 per 100,000 in Stoke on Trent PCT also exceeded the 95% control limit; however the mortality rates for these PCTs were not statistically significantly different from the regional average.

The incidence rate of lung cancer in women was significantly very low for residents of Herefordshire PCT (20.4 per 100,000). In contrast, this PCT's mortality rate (19.5 per 100,000) was within the expected range of the regional average.

Shropshire County PCTs incidence rate (22.5 per 100,000) was below the lower 95% control limit, and the mortality rate (17.8 per 100,000) was significantly very low in comparison to the West Midlands average. Dudley and Worcestershire PCTs both had low incidence (24.7 and 26.3 per 100,000 respectively) and mortality rates (19.1 and 20.6 per 100,000 respectively).

Figure 10.13: Incidence of lung cancer in women (2003-2005)

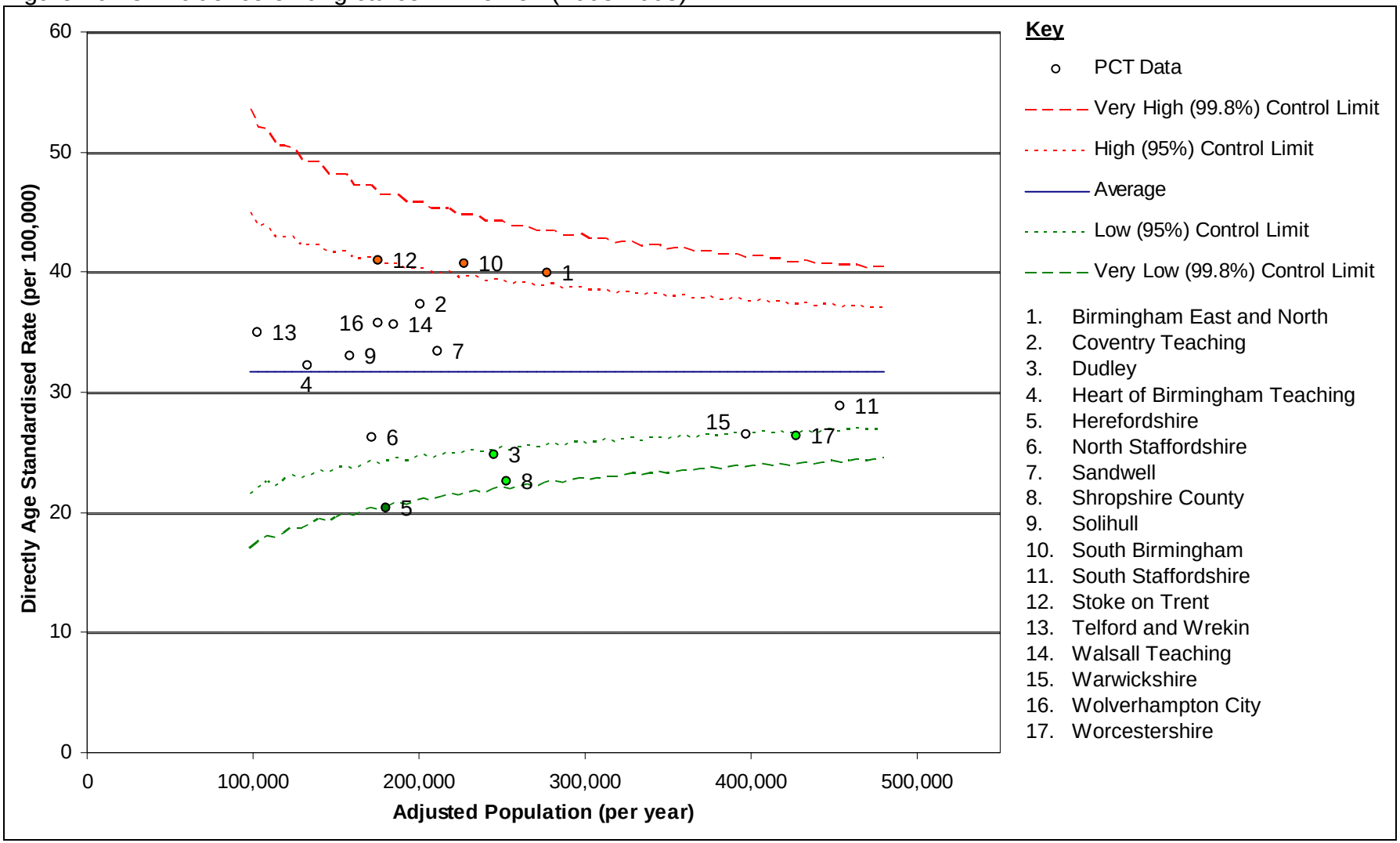
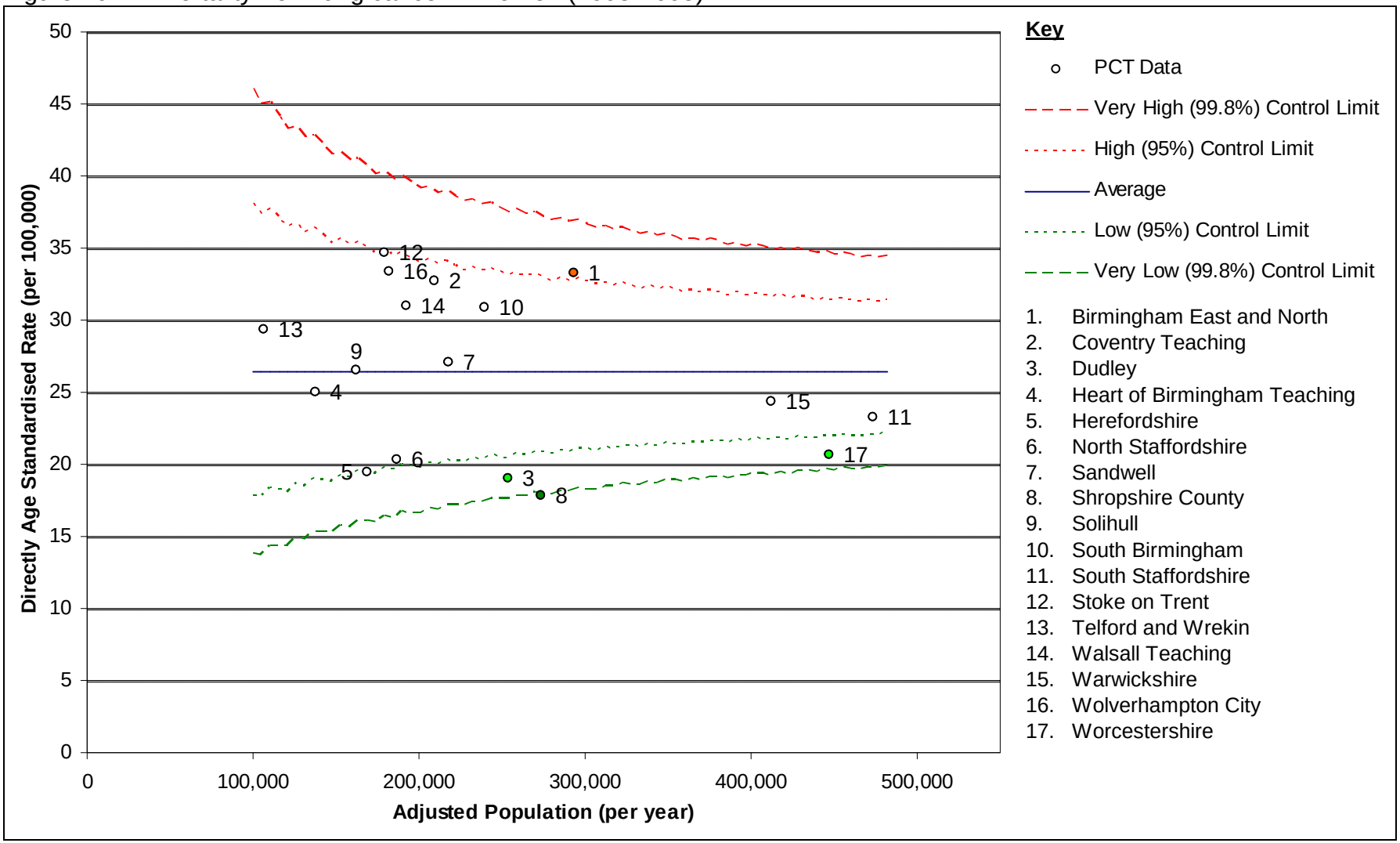


Figure 10.14: Mortality from lung cancer in women (2003-2005)



10.2.5 Prostate (ICD10 C61)

Figures 10.15 and 10.16 show incidence and mortality rates for PCTs in the West Midlands for men diagnosed with / deaths from prostate cancer in 2003-2005.

Although mortality rates for prostate cancer did not show any statistically significant variation from the West Midlands average (26.5 per 100,000), there was a wide variation observed for the incidence rates.

Prostate cancer incidence rates were found to be higher than the West Midlands average (100.8 per 100,000) in four PCTs; Birmingham East & North, Solihull, South Birmingham and Worcestershire with rates of 120.6, 125.2, 123.1 and 117.9 per 100,000 respectively, all of which exceeded the upper 95% control limit.

Incidence rates were significantly very low in North Staffordshire and Stoke on Trent PCTs (70.1 and 68.5 per 100,000 respectively). Two further PCTs were found to have low incidence rates, below the 95% control limit, namely Herefordshire and Sandwell PCTs (79.2 and 83.0 per 100,000 respectively).

Figure 10.15: Incidence of prostate cancer (2003-2005)

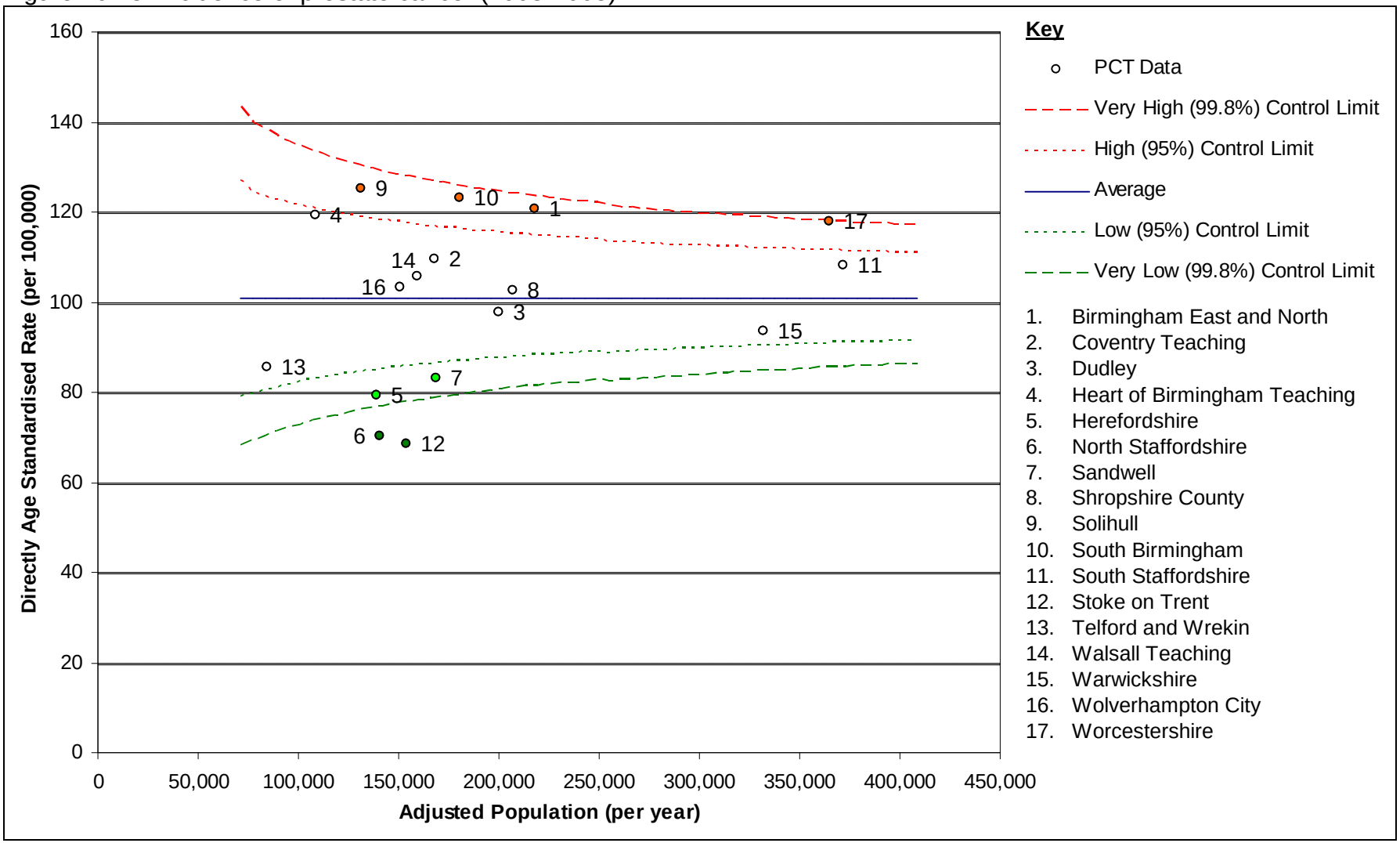
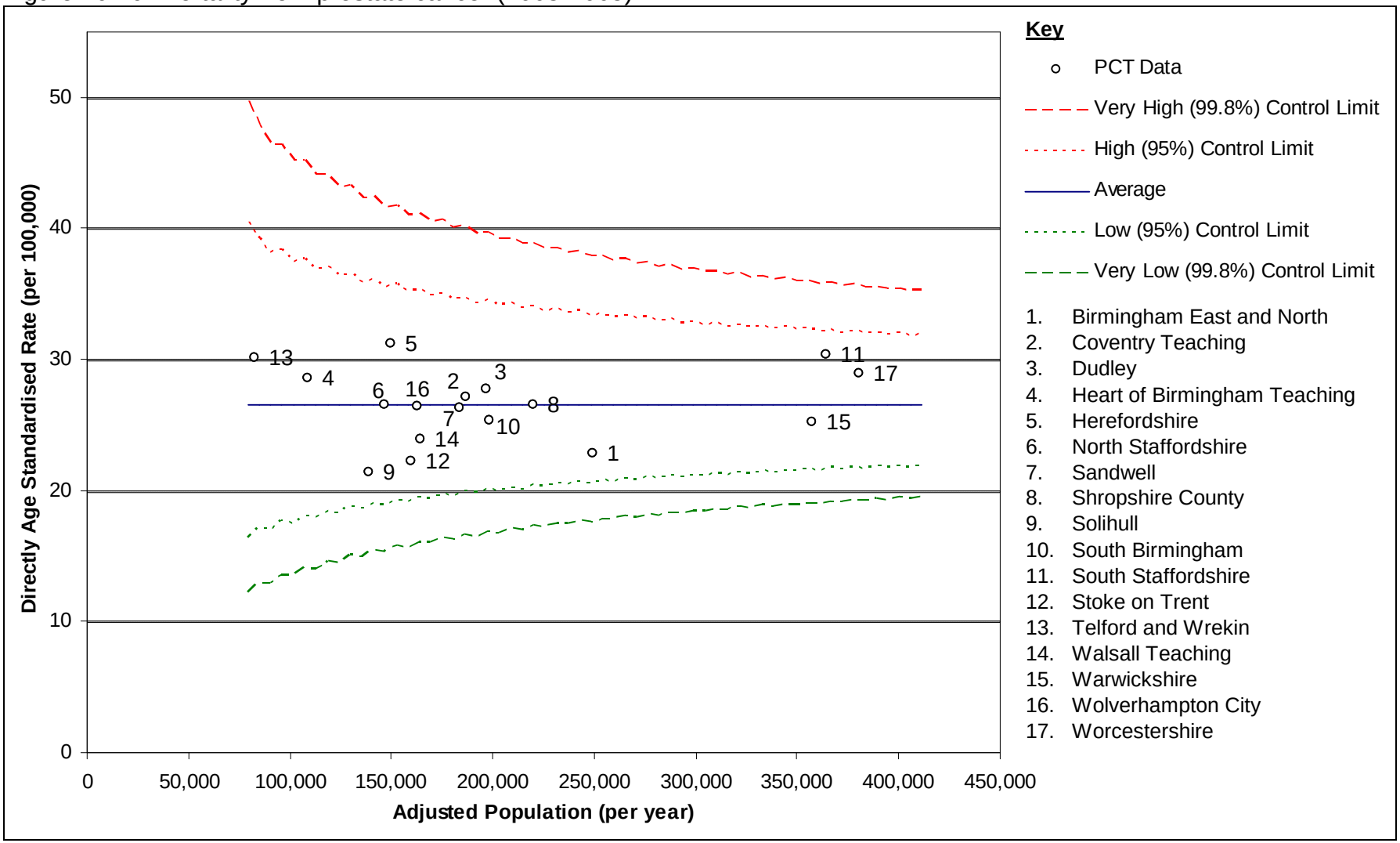


Figure 10.16: Mortality from prostate cancer (2003-2005)



10.3 Summary

During 2003-2005, a total of 76,229 malignant tumours (excluding non-melanoma skin cancer) were diagnosed in residents of the PCTs in the West Midlands, 38,817 in men and 37,412 in women. In this same time period 21,572 men and 19,128 women died from malignant cancer (excluding non-melanoma skin cancer). A summary of the variation in incidence and mortality rates as indicated by the funnel plots are shown in the Tables 10.1 and 10.2, for men and women respectively.

Table 10.1: Male Funnel Plot Summary Table (2003-2005)

Cancer Site	Statistic	Very Low	Low	High	Very High
All Malignant Cancers (excluding non-melanoma skin)	Incidence	Herefordshire Warwickshire	North Staffordshire	Birmingham East and North	South Birmingham
	Mortality	Worcestershire	Herefordshire Shropshire County Solihull Warwickshire	Stoke on Trent	
Prostate	Incidence	North Staffordshire Stoke on Trent	Herefordshire Sandwell	Birmingham East and North Solihull South Birmingham Worcestershire	
	Mortality				
Colorectal	Incidence				
	Mortality				
Lung	Incidence	Herefordshire Warwickshire Worcestershire	Shropshire County Solihull	Birmingham East and North Sandwell	Stoke on Trent
	Mortality	Herefordshire Worcestershire	Shropshire County Solihull South Staffordshire Warwickshire	Sandwell Stoke on Trent	

Table 10.2: Female Funnel Plot Summary Table (2003-2005)

Cancer Site	Statistic	Very Low	Low	High	Very High
All Malignant Cancers (excluding non-melanoma skin)	Incidence		Heart of Birmingham Teaching	Stoke on Trent	
	Mortality		Shropshire County	Stoke on Trent	
Breast	Incidence		Heart of Birmingham Teaching Sandwell		
	Mortality				
Colorectal	Incidence		Heart of Birmingham Teaching Wolverhampton City		
	Mortality			Stoke on Trent	
Lung	Incidence	Herefordshire	Dudley Shropshire County Worcestershire	Birmingham East and North South Birmingham Stoke on Trent	
	Mortality	Shropshire County	Dudley Worcestershire	Birmingham East and North	

Overall for men, South Birmingham PCT had incidence rates, which were statistically significantly higher than the West Midlands average, seemingly being driven by the high prostate cancer rate. However, the male mortality rate of South Birmingham PCT did not reflect its very high incidence rate. This is possibly due to South Birmingham being relatively affluent, thereby more likely to detect good prognosis prostate cancers via higher use of prostate specific antigen (PSA) testing.

Men in Stoke-on-Trent PCT had a higher mortality rate than the regional average, not indicated by this PCT's overall incidence. However, Stoke on Trent PCT was found to have significantly increased rates of lung cancer in men, the second most common cancer in men in the West Midlands[3], with the incidence rate being very high in this PCT in comparison to the regional average; likewise the mortality for lung cancer was also high. This effect is likely to be due to the higher levels of deprivation in Stoke, leading to higher incidence and mortality rates from lung cancer, related to higher smoking in the area.

For females, in 2003-2005, the incidence and mortality rates of all malignant cancers (excluding non-melanoma skin cancer) were not statistically significantly different, at the 99.8% level, from the West Midlands average in any of the PCTs in the region. However, Stoke-on-Trent PCT did fall into the area between the 95% and 99.8% control limits, indicating higher rates than the average for the region. This is likely to be due to high incidence of lung cancer and high mortality of colorectal cancer in comparison to the regional averages.

As well as South Birmingham already being mentioned above, three other PCTs (Birmingham East & North, Solihull and Worcestershire) had a high incidence of prostate cancer, the most common cancer in men in the West Midlands[3], compared with the regional average. None of them, however, had mortality rates outside the control limits.

For men, areas with reduced risk may include Herefordshire and Warwickshire PCTs for incidence and Worcestershire PCT for mortality of all malignant cancers (excluding non-melanoma skin cancer), very significantly below the regional averages. All of these areas are relatively affluent when compared with the rest of the West Midlands. These reduced risks are consistent with these PCTs having significantly low / very low incidence and mortality of lung cancer in comparison to the regional average. In contrast the deprived areas, Stoke on Trent and Sandwell PCTs had significantly very low and low incidence of prostate cancer, respectively. High lung cancer and high prostate cancer rates in Birmingham East & North PCT seem counter-intuitive to explanation by deprivation levels. However, this PCT was formed in 2006 from two previous PCTs, the deprived Eastern Birmingham PCT and the more affluent North Birmingham PCT.

For both men and women, Shropshire County PCT was found to have significantly low or very low incidence of and mortality from lung cancers; and similarly to males, Herefordshire PCT was found to have a significantly very low incidence rate of lung cancer.

10.4 Conclusions

Most of these effects, seen in both males and females, are likely to be associated with known deprivation patterns. However, it is possible that the mortality effects could reflect differing access to treatment or having different levels of co-morbidity, affecting the treatment options available; or both the incidence/mortality effects could reflect differing presentation patterns (leading to different severity of disease). These all need further examination and investigation across the region.

References:

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(2) Eastern Region Public Health Observatory. Template for producing funnel plots for directly age standardised rates (2005). http://www.erpho.org.uk/viewResource.aspx?id=12476. Last accessed 05/01/2007
(3) West Midlands Cancer Intelligence Unit. The Top Ten Cancers in the West Midlands (2006). http://www.wmpho.org.uk/wmciu/PublicationDetail.asp?PublicationID=147. Last accessed 05/01/2007

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CHAPTER ELEVEN: EPILEPSY AND EMERGENCY HOSPITAL ADMISSIONS IN THE WEST MIDLANDS

11.1 Introduction

Epilepsy is the most common of disabling neurological conditions. It is prevalent in the young with a majority of sufferers first having seizures in childhood, however there is also a further incidence peak in older people. This chapter examines the impact of epilepsy on emergency hospital care in the region. Whilst acknowledged as a common condition, it is difficult to determine the prevalence in the population. A major systematic review of the literature, reported a 30-fold range in the prevalence rates, which highlights the many problems of case ascertainment (1). It estimated that the point prevalence of active epilepsy was between 4 and 10/1000 and a lifetime prevalence rate of non-febrile seizure of between 1.5% and 5% of the population. A report by the Department of Health reported that in a GP practice population of 2,500, 39 people are estimated to have epilepsy, 13 of whom will be disabled (2). Applying this rate to the population of the West Midlands (5.36 million) it is estimated that 83,700 people have the condition. This is also in line with Sanders and Shorvon's lifetime prevalence rate. Goodridge and Shorvon's general practice (GP) study (3) (see Table 11.1) shows prevalence rates broken down between different forms of epilepsy.

Table 11.1: Prevalence reported in a survey of epilepsy amongst 6,000 persons in a general practice population in Kent.

Type of epilepsy	**Prevalence per 1,000 persons**
Lifetime prevalence *	20.3
Recurrent seizures **	17
Active epilepsy *** and/or on treatment	10.5
Active epilepsy ***	5.3

Notes:
* Number of persons who had ever had a non-febrile seizure
** Lifetime prevalence of those having recurrent seizures
*** Active epilepsy defined as those who had had a seizure within the previous 24 months

Source: Goodridge and Shorvon, 1983

As epilepsy has important physical, psychosocial and economic implications for the patient, it is important that the diagnosis is correct. Studies have highlighted that diagnoses of epilepsy made by non-specialists are problematic (4,5). Additionally, misdiagnosis will also cause unnecessary costs to providers of care. At first time epilepsy presentation it is important to access specialist opinion to arrive at a correct diagnosis. In the long run this will provide more effective and cost effective care. Himanshu and Manjit's

research at an emergency department show 25% patients attending A&E showing seizure symptoms were 'first fit' patients.[6]

11.2 Emergency Admissions to Hospital in the West Midlands

Hospital Episodes Statistics (HES) data show that in the West Midlands, emergency admissions to hospital with a diagnosis mention of epilepsy has increased steadily over the last five years (see Figure 11.1).

Figure 11.1: Emergency admissions to hospital with an epilepsy diagnosis, West Midlands residents 2001/02 to 2005/06

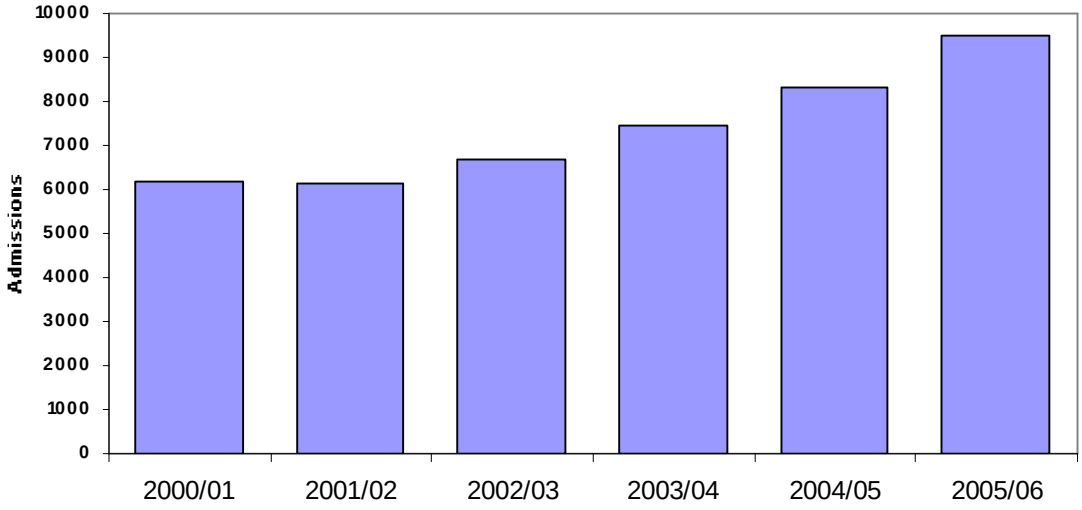


Figure 11.2 below shows the standardised admission rate by PCT. Showing directly standardised rates (DSR), Sandwell has the highest number of admissions per 100,000 people whereas South Staffordshire has the least. PCTs with deprived populations appear to have generally higher rates.

Figure 11.2: Directly age sex standardised admission rates per 100,000 resident population, with a diagnosis of epilepsy, West Midlands residents by PCT

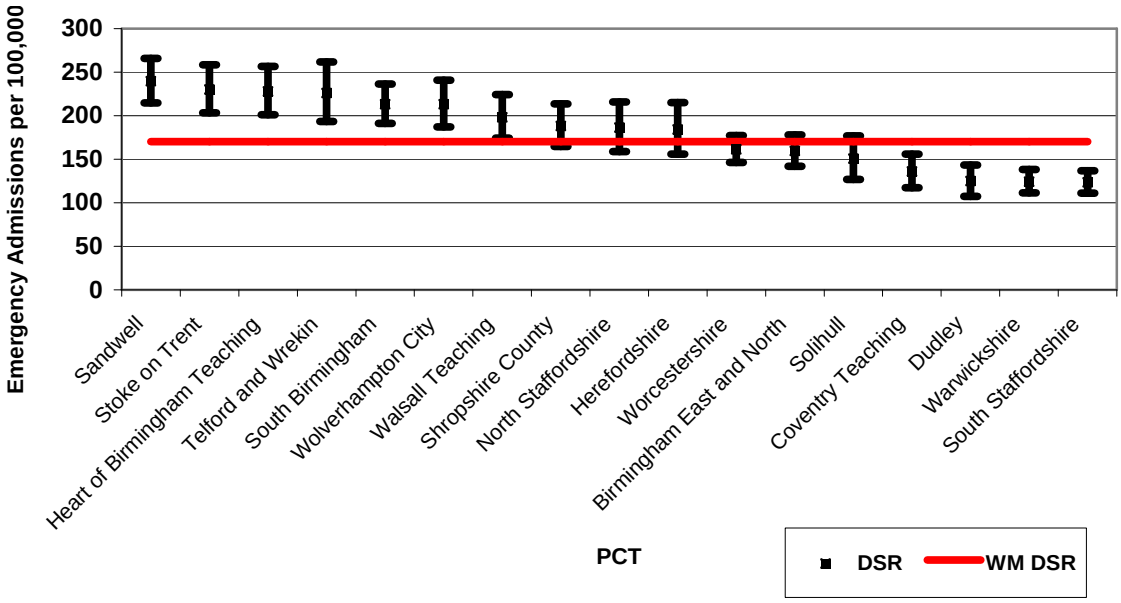
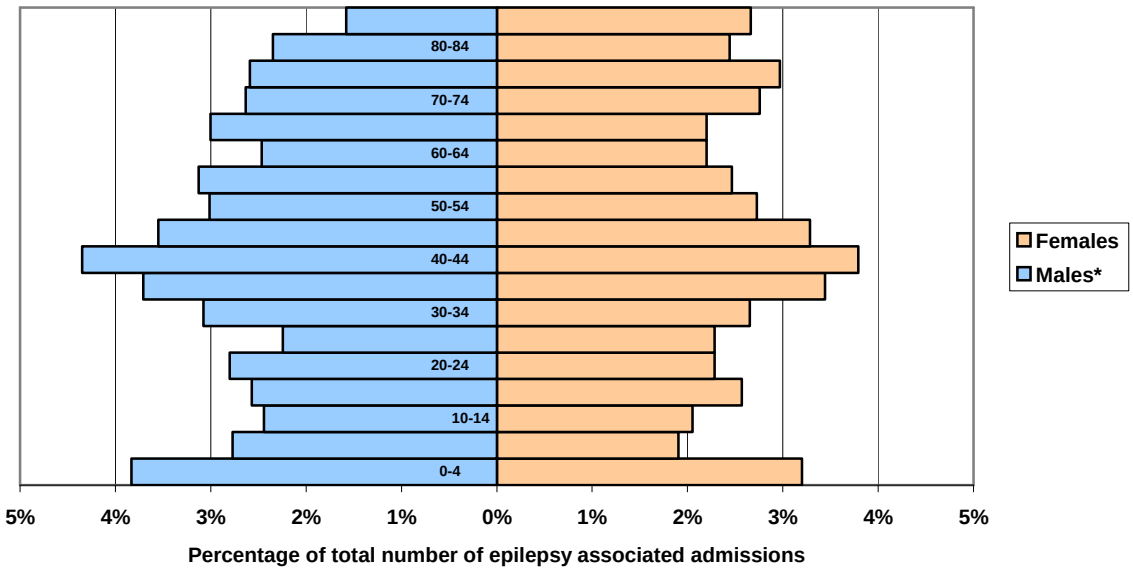


Figure 11.3 shows the population pyramid for these admissions. A higher proportion of admissions involve males at most ages.

Figure 11.3: Population pyramid for all emergency admissions to hospital of West Midlands residents with an epilepsy diagnosis, 2005/06



One of the possible reasons for increased reporting of epilepsy, is hospitals being incentivised to capture details of co-morbidities on their information systems, since the introduction of Payment by Results (PbR). We attempted to adjust the admission analysis to account for this. We attempted to estimate

in how many cases was epilepsy the underlying reason for admission rather than just a co-morbidity. This was more complex than simply looking for epilepsy being given as the main primary diagnosis (MPD). In some cases the MPD may be injuries sustained during a fit, with epilepsy given as a secondary. Additionally, the primary diagnosis of such episodes could be recorded as convulsions or syncope. A subsequent confirmed diagnosis of epilepsy sometimes is recorded as a secondary diagnosis. A second analysis was done in which a coding frame was applied which captured cases where epilepsy is the primary diagnosis or is secondary only to injury or convulsions / syncope / collapse.

Figure 11.4 shows the results of this analysis. As can be seen compared to Figure 11.1, there are many fewer cases, however there is still a year on year rise.

Figure 11.4: Emergency admissions to hospital where epilepsy is the inferred principal reason for admission, West Midlands residents 2001/02 to 2005/06

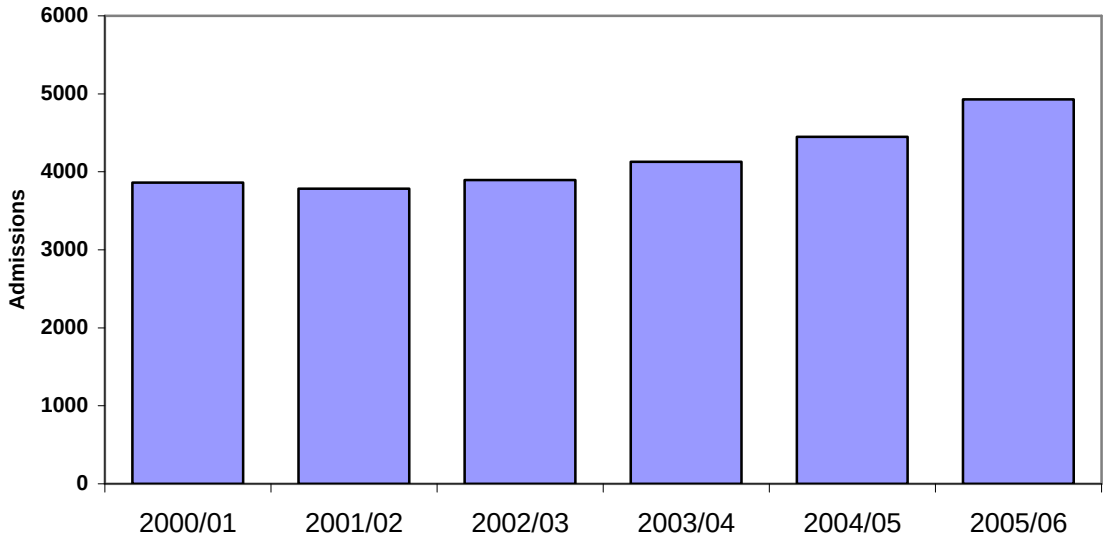


Figure 11.5 shows the directly standardised rates derived from the same adjusted data. It also shows an interesting change in the relative magnitude of the observed rates between PCT populations.

Figure 11.5: Directly age sex standardised admission rates per 100,000 resident population, where epilepsy is the inferred principal reason for admission, West Midlands residents by PCT

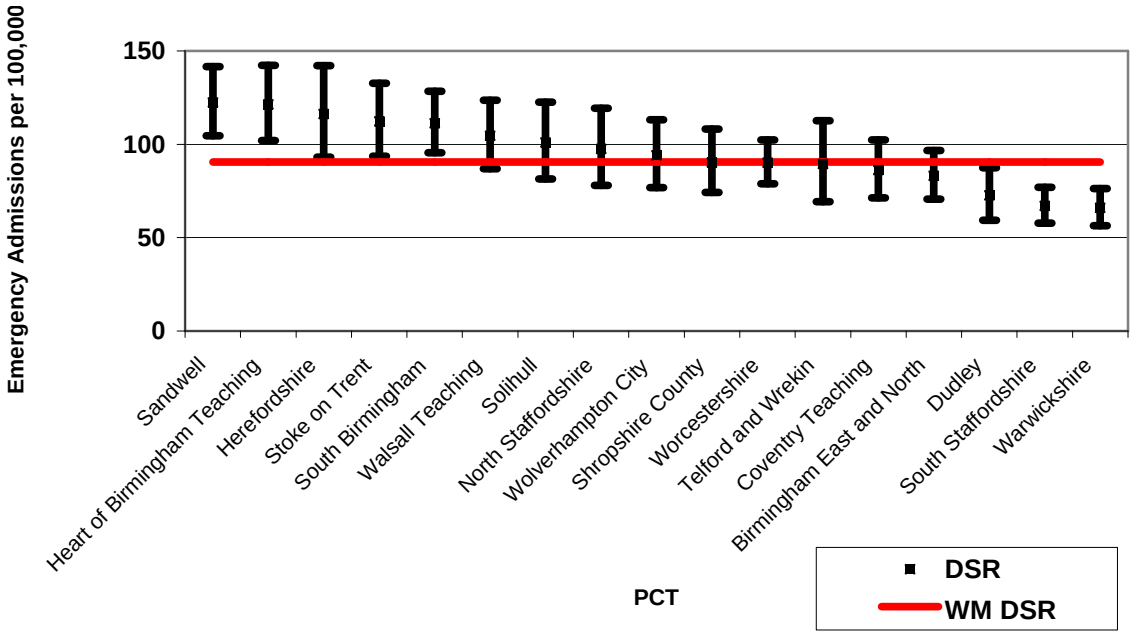
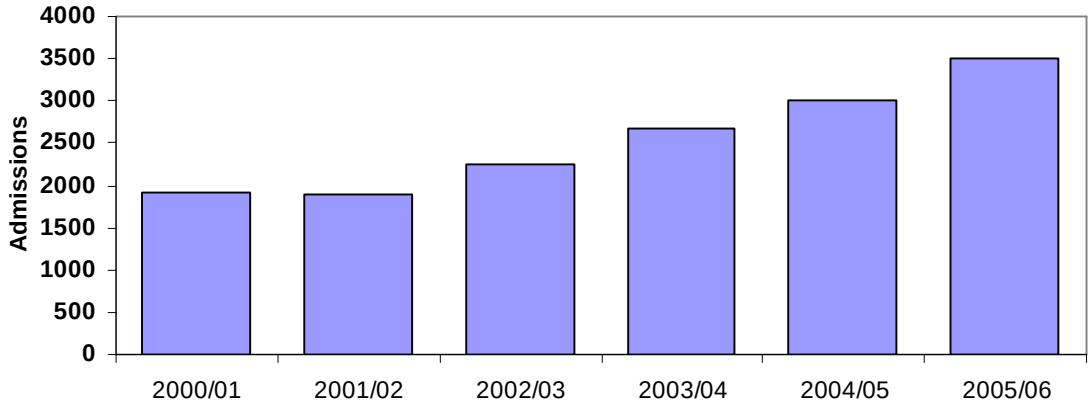


Figure 11.6 examines those cases where epilepsy is a co-morbidity to a probably unrelated cause. This analysis was done to test the hypothesis that co-morbidity coding was driving some of the observed increase in admissions. A 'probably unrelated' primary diagnosis is one which is not injury, or one of the signs and symptoms codes often recorded in epilepsy cases such as 'collapse' The very marked rise observed does suggest that there is more complete co-morbidity recording in NHS systems.

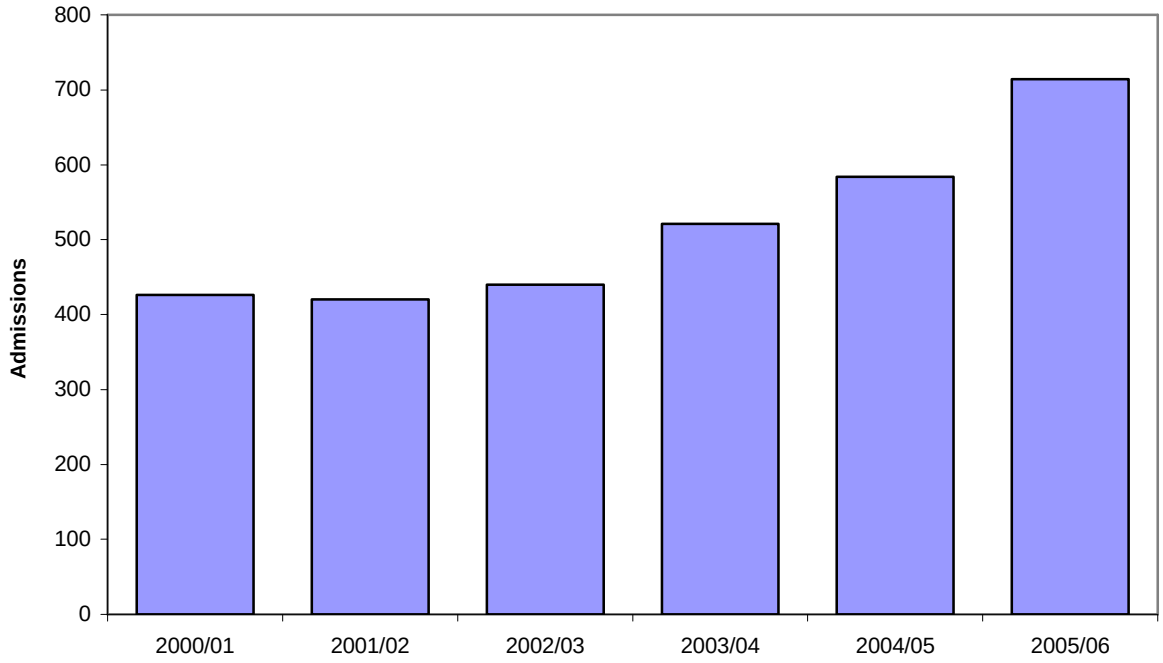
Figure 11.6: Emergency admissions to hospital where epilepsy is a co-morbidity and primary diagnosis is probably unrelated, West Midlands residents 2001/02 to 2005/06



11.3 Injury and Epilepsy

People with epilepsy are at greater risk of injury. Also as many sufferers are older people, the consequences of injury can be serious. The finding of note in this analysis, (see Figure 11. 7) is that given the numbers of admissions where epilepsy is mentioned, there are relatively few cases where a diagnosis of injury is recorded. This may be due to an undercounting of (probably minor) injuries that are associated with the epilepsy episode. Also it is possible that in cases of more serious injury, the patient's epilepsy may be systematically under-recorded. It would require further detailed investigation to establish this. There has however been an overall rise in cases of injury and epilepsy. Again this could be a result of more co-morbidity recording.

Figure 11.7: Emergency admissions to hospital where epilepsy and injury are recorded as diagnoses, West Midlands residents 2001/02 to 2005/06



11.4 Conclusion:

Despite the difficulties in quantifying the precise burden of epilepsy morbidity in the population it is clearly a condition affecting many thousands of people and is therefore a public health concern. Many affected patients require emergency admission to hospital from time to time. Care must be taken in determining an appropriate method to count cases, as this is a diagnosis, which is clearly sensitive to changes in how data are captured. These issues notwithstanding, epilepsy is clearly a factor in many thousands of emergency admissions to hospital and these admissions appear to be increasing. This may be an area where further service development could provide frameworks for reducing admissions.

References

1) Sander JW, Shorvon SD, 1996 Epidemiology of the epilepsies. Journal of Neurology, Neurosurgery and Psychiatry 61: 433 – 443
2) Neurological conditions outline' Dept of Health publication, 2001. Retrieved 29 March 2006 from website: <http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4009210>
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4) Smith D, Defalla BA, Chadwick DW. The misdiagnosis of epilepsy and the management of refractory epilepsy in a specialist clinic. Q J Med 1999; 92 (1): 15-23
5) Scheepers B, Clough P, Pickles C. The misdiagnosis of epilepsy: findings of a population study. Seizure 1998;7 (5): 403-6
6) Himanshu Bhatt, Manjit S. Matharu, Katherine Henderson, Richard Greenwood. An audit of first seizures presenting to an Accident and Emergency Department. Seizure 2005;14: 59

CHAPTER TWELVE: MATERNITY SERVICES IN THE WEST MIDLANDS

12.1 Introduction

Maternity services are a key public health measure to improve health and reduce inequalities, seen by Government as in need of modernisation. Various current documents and policies relate to maternity services, particularly the Maternity Standard of the National Service Framework for Children, Young People and Maternity Services (1) and NICE guidelines. The overall vision of the NSF is:

- Flexible, individualised services designed to fit around the needs of the mother and her baby's journey through pregnancy and motherhood, with emphasis on the needs of vulnerable and disadvantaged women
- Women being supported and encouraged to have as normal a pregnancy and birth as possible, with medical intervention only if it is of benefit
- Midwifery and obstetric care based on providing good clinical and psychological outcomes for the woman and her baby, while putting equal emphasis on preparing new parents for parenthood

A project on research dissemination in maternity services in the region (2) identified a number of current concerns within PCTs and found that maternity services did not yet meet many aspects of the NSF. PCTs' main concerns were:

1. **Management/organisation of services**:
   - Provision of optimum levels of care – what are the most effective models of maternity care, taking account of shortages of midwives, and effective deployment of maternity assistants
   - Improvements in basic care, particularly in areas with high maternity caseloads
   - Improving access to midwifery care, especially via community services.
   - Changing practice to work with multidisciplinary teams, for instance in Sure Start Children's Centres
   - Relationships/contracts/networks between purchasers and providers.

2. **Improving services for particular vulnerable groups** eg ethnic groups, particularly those who either do not speak English, have different cultural expectations of care or who access the service late, those subject to domestic abuse and women with disabilities

3. **Meeting targets for increasing breastfeeding and decreasing smoking levels, and how to achieve these**

4. **Specific concerns** such as **high levels of perinatal and infant mortality** in some areas and high levels of **caesarean section** in others

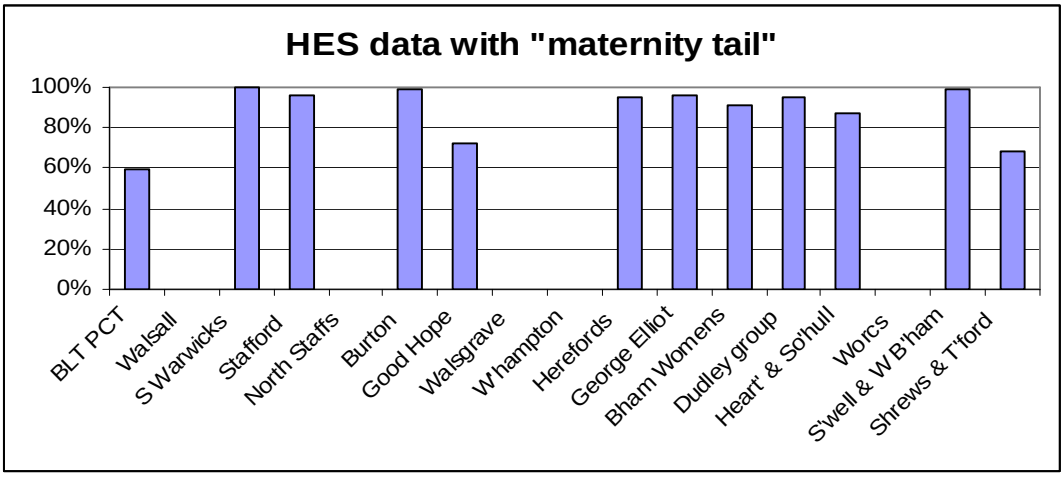
This chapter provides a snapshot of current maternity services in the West Midlands, where data is available, relating to booking for antenatal care; disadvantaged groups; smoking in pregnancy; breastfeeding initiation and caesarean section rates. There are no data to present on most aspects relevant to PCTs' concerns about organisation of services. Links between maternity services and infant outcome are covered extensively by the West Midlands Perinatal Institute (WMPI) and are not included in this chapter.

12.2 Data Used in this Chapter

This chapter collated data from a number of sources, using the most up-to-date figures available to us. Hospital Episode Statistics (HES) are collected when patients are admitted to consultant care and for maternity patients we have used these data to show numbers of births, maternal characteristics and hospital stay. In the case of maternity admissions however, some very useful information about the birth is collected in a subset of the main dataset termed the "maternity tail". For a variety of technical reasons many units are unable to capture information in the 'tail', such that it can be incorporated into the national database. The analyses presented here do not use data items captured in this part of the data set. The extent to which tail data are available is shown in Figure 12.1. Complete data could inform Local Delivery Plans as recommended by a 2003 House of Commons Health Report (3).

Local Delivery Plan Returns (LDPR) contain data on breastfeeding and smoking cessation submitted quarterly by PCTs to the Healthcare Commission. There are a number of gaps in the LDPR. These are where data did not meet Department of Health quality standards, eg no more than 5% of numbers unknown. Registration information, such as that derived from the Office of National Statistics, provide a third source of data, while some results from the 2006 survey by the National Perinatal Epidemiology Unit (NPEU) and the Infant Feeding Survey 2005 (IFS) [(a)] have been included to provide a fuller picture.

Figure 12.1: Percentage of HES maternal episode data with “maternity tail”, by provider [(b)]



(b) (BLT) Birmingham, Lichfield and Tamworth PCT was a provider of maternity services a well as a purchaser

Source: HES 2005/6

12.3 Maternity Service Provision in the West Midlands

According to ONS data, the birth rate has been rising since 2001. 65,956, one tenth of the 645,835 live births in England and Wales in 2005/6, were in the West Midlands. Provisional figures for 2006 show the West Midlands to have the highest total fertility rate [(c)] (1.97 children per woman) and 2nd highest general fertility rate [(d)] (62.2 live births /1000 women of childbearing age) in England and Wales (3).

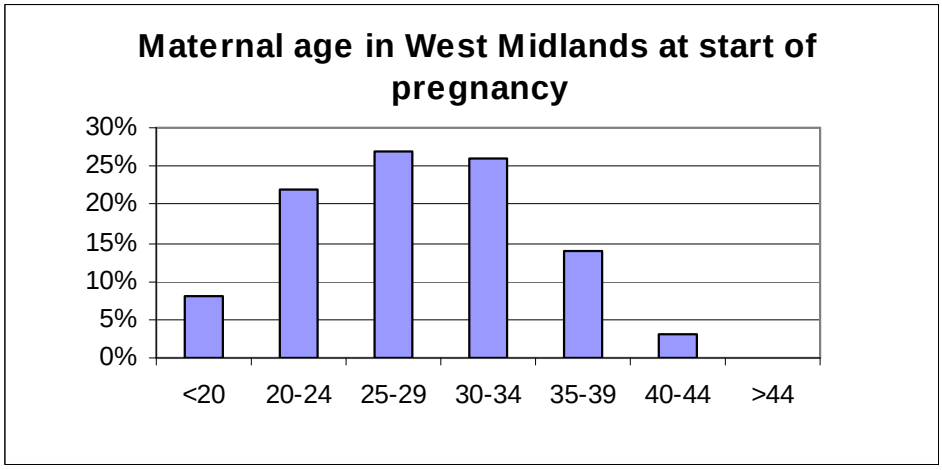
HES contains records of 63,748 deliveries, resulting in 64,087 births 146,943 West Midlands obstetric-related hospital episodes in 2005/6. There were 63,034 singleton births, 1,026 twins, and 27 triplets. LDPR data for breastfeeding and smoking rates record the following numbers of maternities: 55,954 in 2003/4, 56,049 in 2004/5 and 56,330 in 2005/6. Over 98% of all births occurred in regional hospitals, with less than 2% of home births and around 0.1% outside the region.

Nationally, there were increases in maternities in all ages, with the highest percentage increase among women between 35 and 39 years old (7%). Other national trends were increases in the number of babies born to women aged 40 or over, and the proportion of births to women born outside the UK (ONS). The maternal age profile the West Midlands is shown in Figure 12.2 (source: HES). 8% of births were to teenagers.

(c) The total fertility rate (TFR) is the average number of children that would be born per woman if women experienced the age-specific fertility rates of the year in question throughout their childbearing lifespan.

(d) The general fertility rate (GFR) is the number of live births per 1,000 women aged 15-44

Figure 12. 2: Maternal age profile of women in the West Midlands



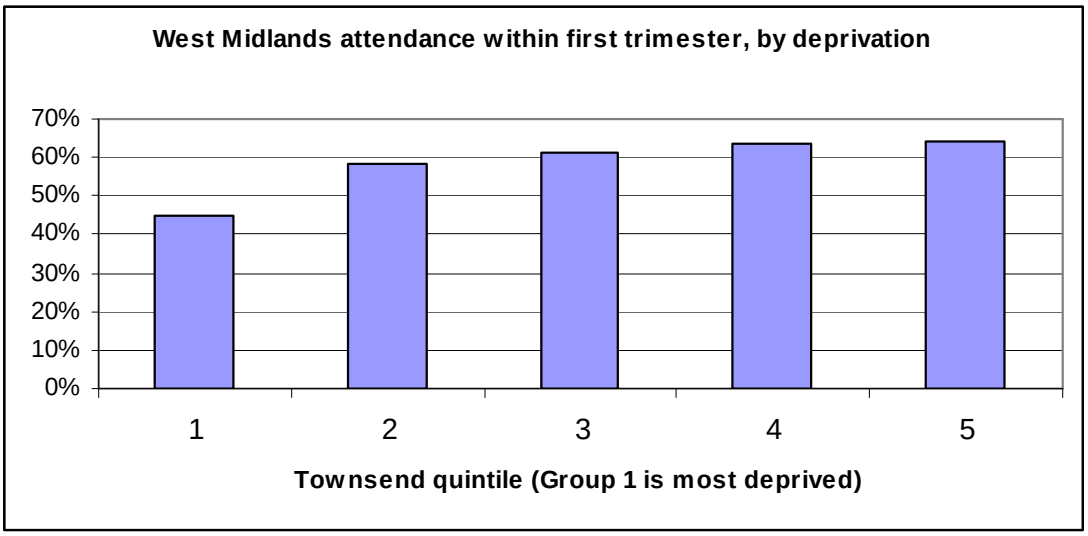
Source: HES 2005/6

12.4 Early Access to Maternity Services among Vulnerable Groups

A key theme of the Maternity Standard of the NSF is to improve the service by making it more accessible, particularly to groups of vulnerable women. Women should be able to access maternity services directly, by 8-10 weeks of pregnancy.

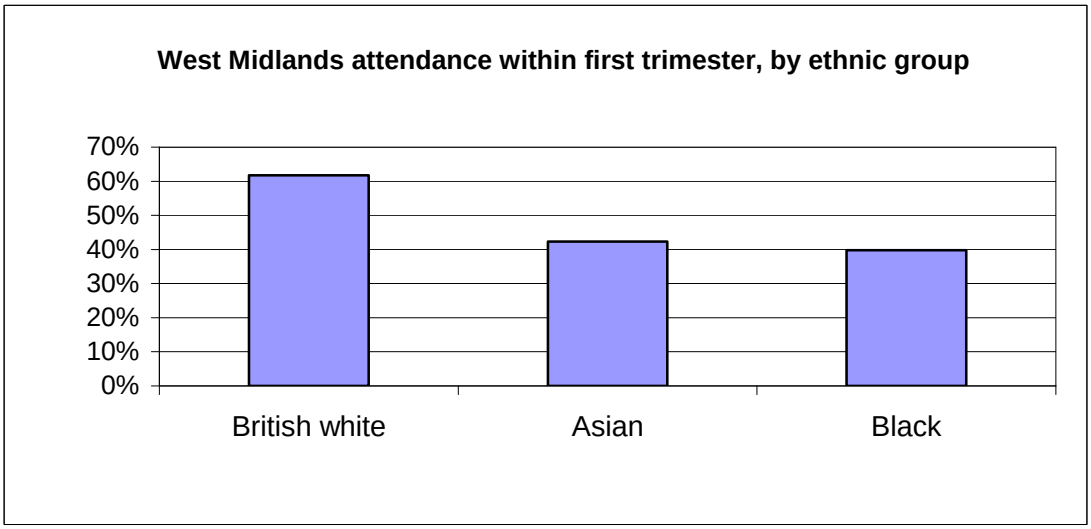
Within the West Midlands women from more deprived backgrounds tend to access the service later than more affluent women (Figure 12.3). Similarly, women from ethnic minority backgrounds tend to access the service later than British white women (Figure 12.4).

Figure 12.3: Comparison of attendance for antenatal care in West Midlands during first trimester, by deprivation (Townsend quintiles)



Source: HES 2005/6

Figure 12.4: Comparison of attendance for antenatal care in West Midlands during first trimester, by ethnic group



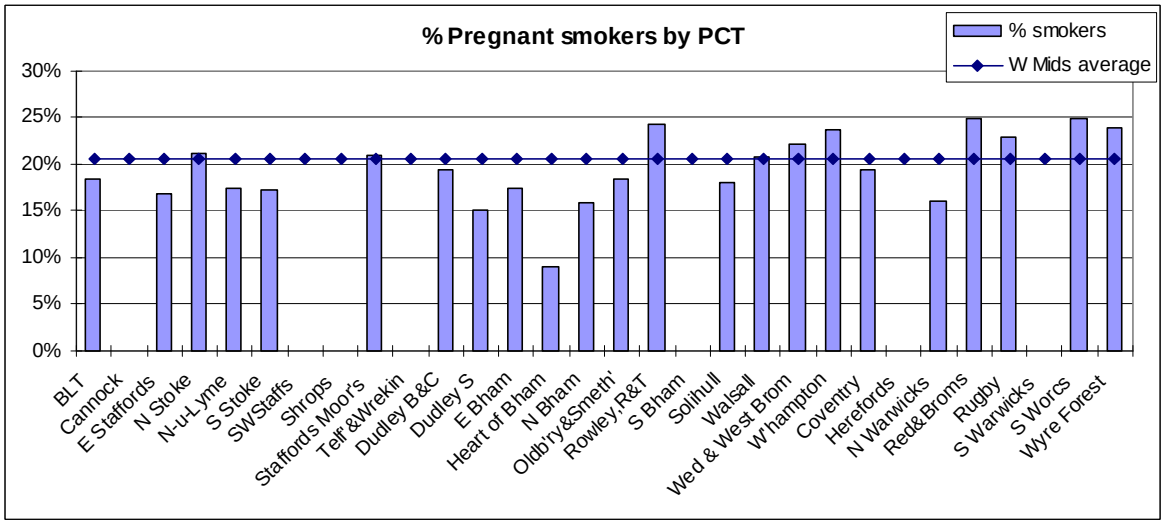
Source: HES 2005/6

Early attendance enables earlier screening and testing and opportunity to provide beneficial interventions such as folic acid and smoking cessation. Services may need to target appropriate communities so that women from more deprived backgrounds and diverse ethnic groups come forward for earlier booking.

12.5 Smoking in Pregnancy

Cigarette smoking is a modifiable risk behaviour consistently shown in epidemiological studies to reduce birth weight and increase perinatal mortality. Numerous trials have examined the effects of a range of smoking cessation interventions and a Cochrane review found a significant reduction in the proportion of women continuing to smoke(4). The relative risk, based on 38 trials and 12,168 women was 0.94, (95% CI 0.93-0.95), which is an absolute difference of 6 in 100 women continuing to smoke. There was a significant reduction in low birth weight, based on 13 trials, 8930 women and 658 events, with a relative risk of 0.81 (95% CI 0.70-0.94); and a significant reduction in preterm birth, based on 11 trials, 10,932 women and 629 events, with a relative risk of 0.84 (95%CI 0.72-0.98). The difference in mean birth weight was 33g (95% CI 11g-55g). There were insufficient numbers, thus inadequate power, to be able to detect significant differences in very low birth weight (<1500g) or perinatal mortality.

Figure 12.5: Smoking rates at end of pregnancy in the West Midlands by PCT, pre-2006 boundaries

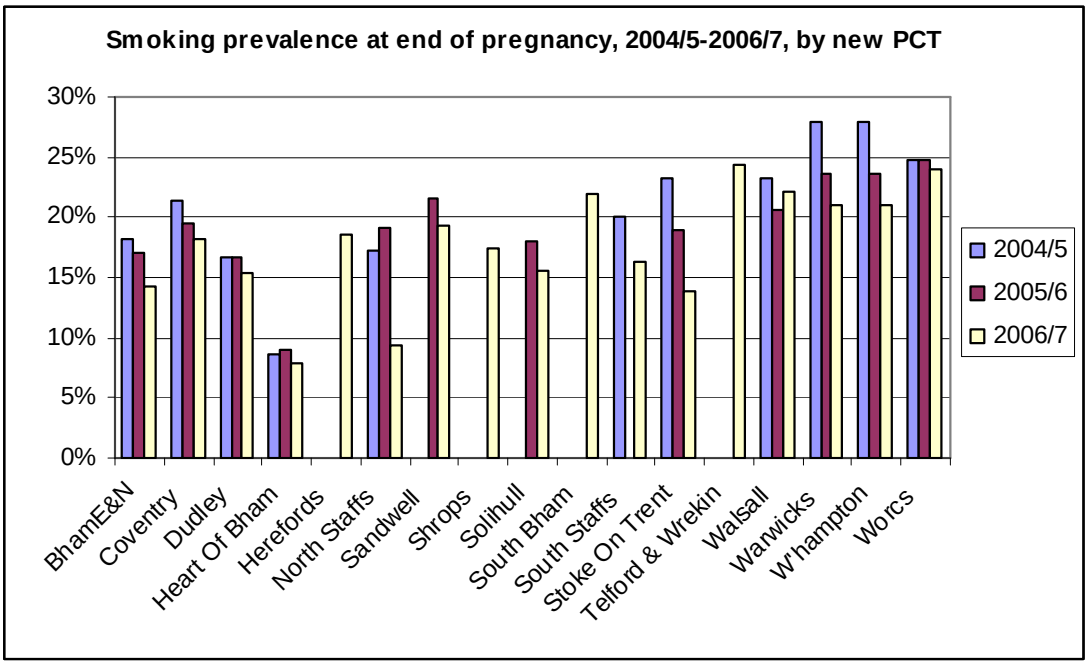


Source: LDPR 2005/6 [(e)]

Figure 12.5 shows variation in smoking levels at the end of pregnancy across the West Midlands, based on PCTs prior to reorganisation in October 2006. According to the local LDPR figures for 2005/6, the highest proportion of mothers who smoked throughout pregnancy was in Wolverhampton, Redditch and Bromsgrove and South Worcestershire. Heart of Birmingham had the lowest levels. Figure 12.5 shows a slight decrease in smoking rates in pregnancy over the last three years for most PCTs.

(e) Figures of smokers at end of pregnancy not included from PCTs more than 5% unknown numbers

Figure 12.6: Smoking prevalence at end of pregnancy, 2004/5-2006/7 by new PCT boundaries

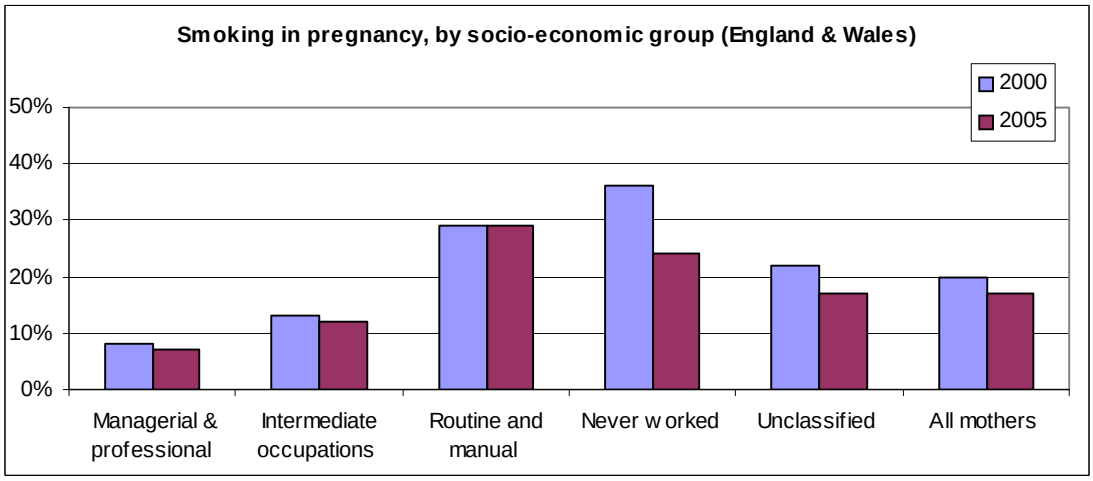


Source: LDPR [(e)]

Data from the IFS 2005 (Figure 12.7 to 12.10) show that women from routine and manual socioeconomic backgrounds and younger women are more likely to smoke and less likely to quit smoking during pregnancy than women from other groups (5).

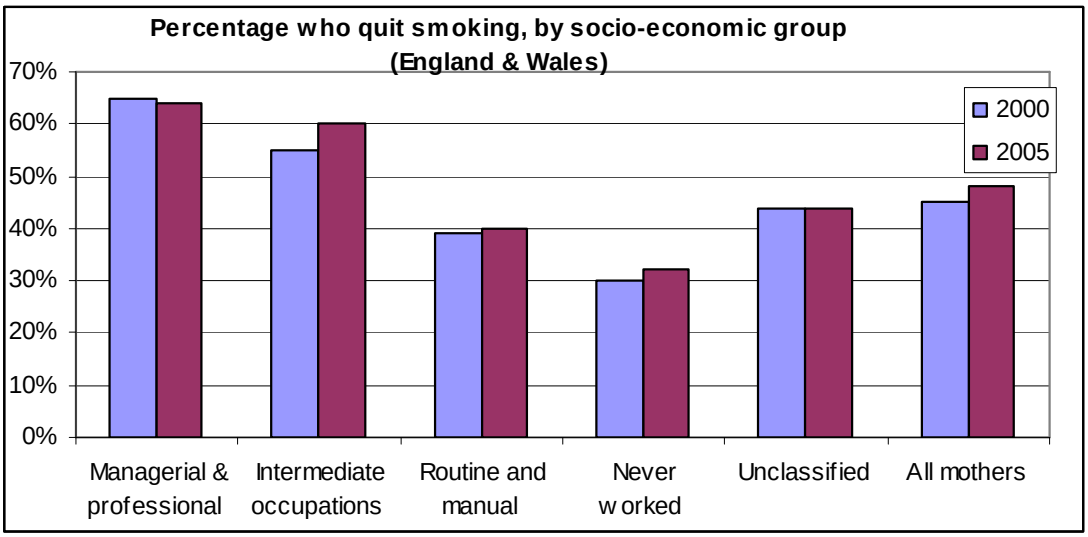
(e) Figures of smokers at end of pregnancy not included from PCTs more than 5% unknown numbers

Figure 12.7: Smoking throughout pregnancy by socio-economic group in England & Wales



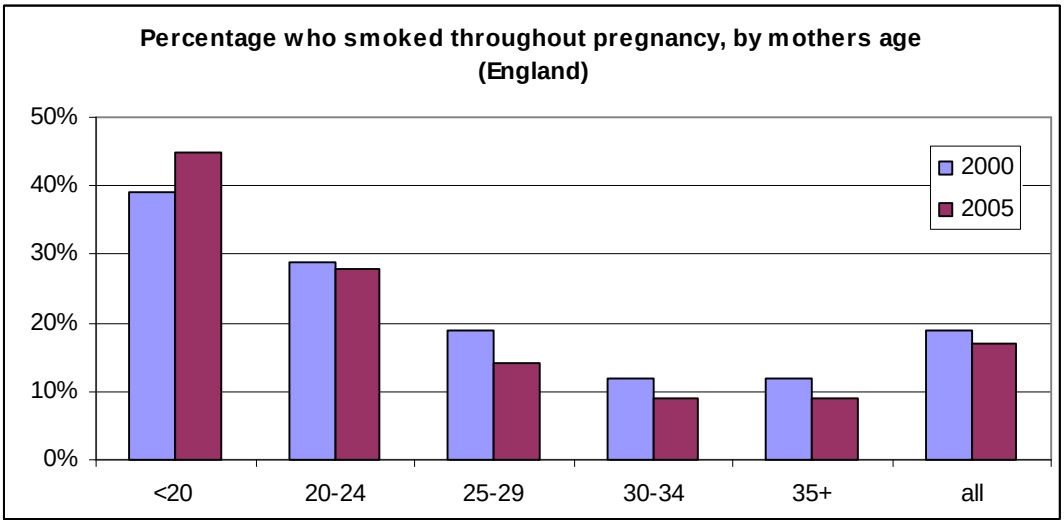
Source: IFS

Figure 12.8: Smoking cessation in pregnancy, by socio-economic group



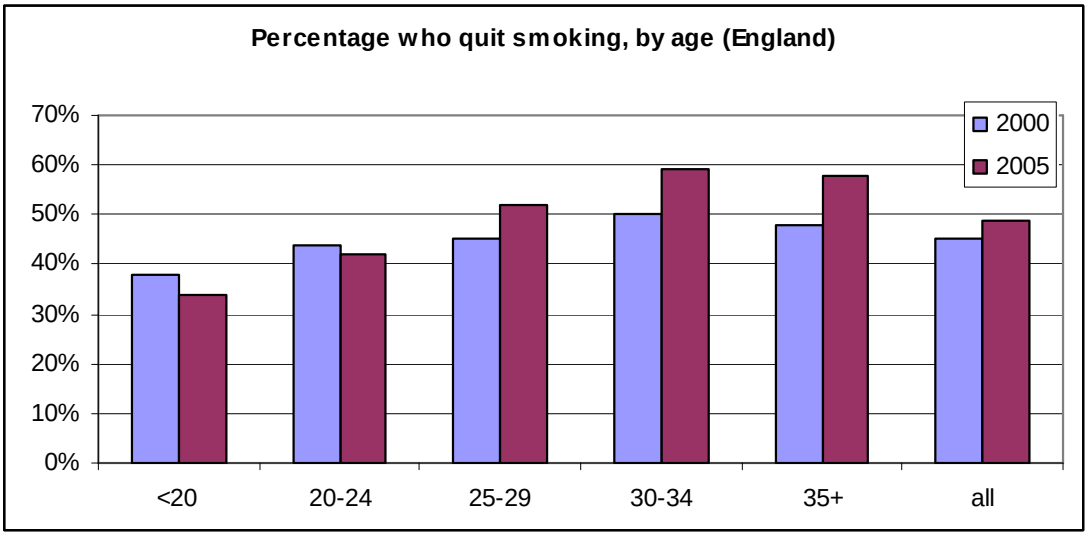
Source: IFS

Fig 12.9: Smoking throughout pregnancy, by age group



Source: IFS

Figure 12.10: Smoking cessation in pregnancy, by age group



Source: IFS

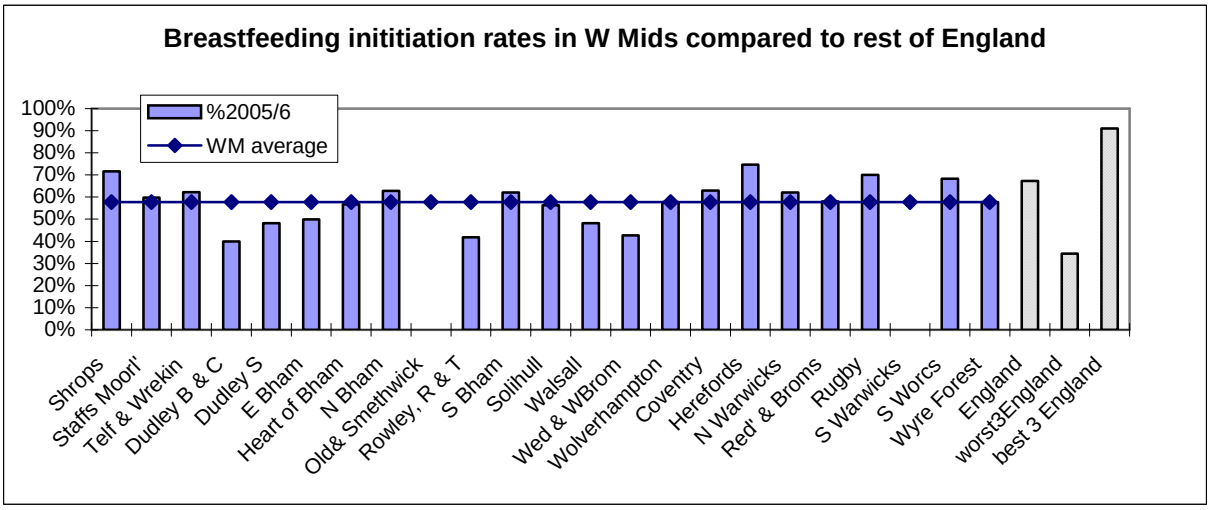
These data would support continued efforts to reduce smoking, especially among younger women and those living in more deprived areas.

12.6 Breastfeeding Initiation

The benefits of breastfeeding in promoting health and preventing disease in both the short and long term, for both mother and infant have been well-documented in many studies, yet initiation and continuation in the UK are around the lowest in Europe (6). LDP returns (Figure 12.11) show that

breastfeeding initiation rates across the West Midlands (2005/6) are slightly lower than the England average, although there is some concern about the definition of "initiation of breastfeeding".

Figure 12.11: Breastfeeding initiation rates across the West Midlands compared to rest of England

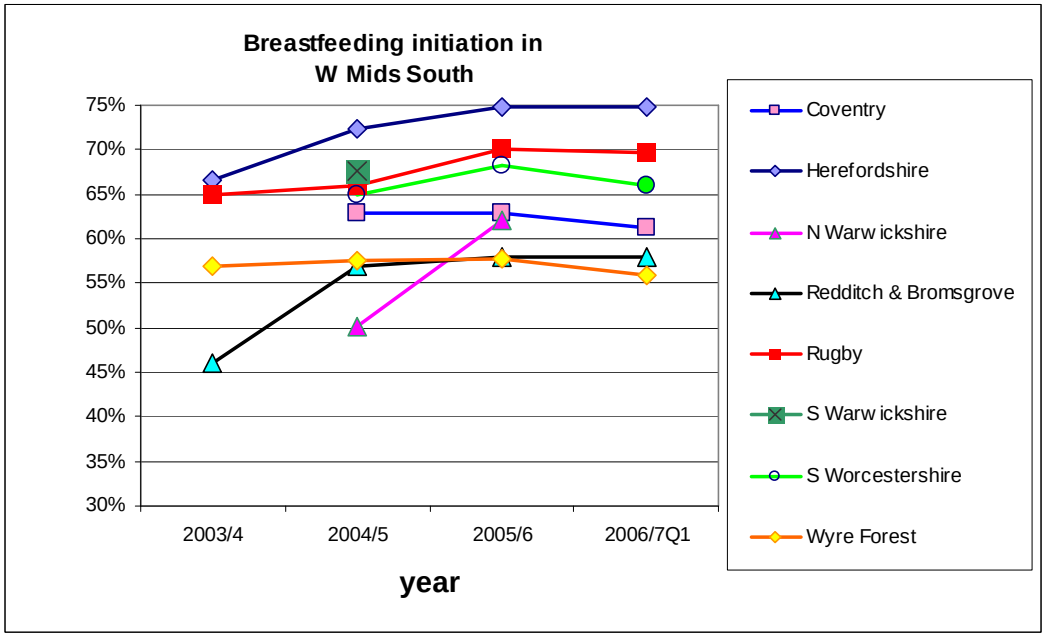


Source: 2005/6 LDPR [(e)]

Figures 12.12 to12.14 show initiation rates within the three former West Midlands SHAs from 2003/4 to the first quarter of 2006/7, according to previous PCT boundaries. The highest rate in the region was Herefordshire. Generally, increases in breastfeeding rates have been low, particularly in areas starting from a low base.

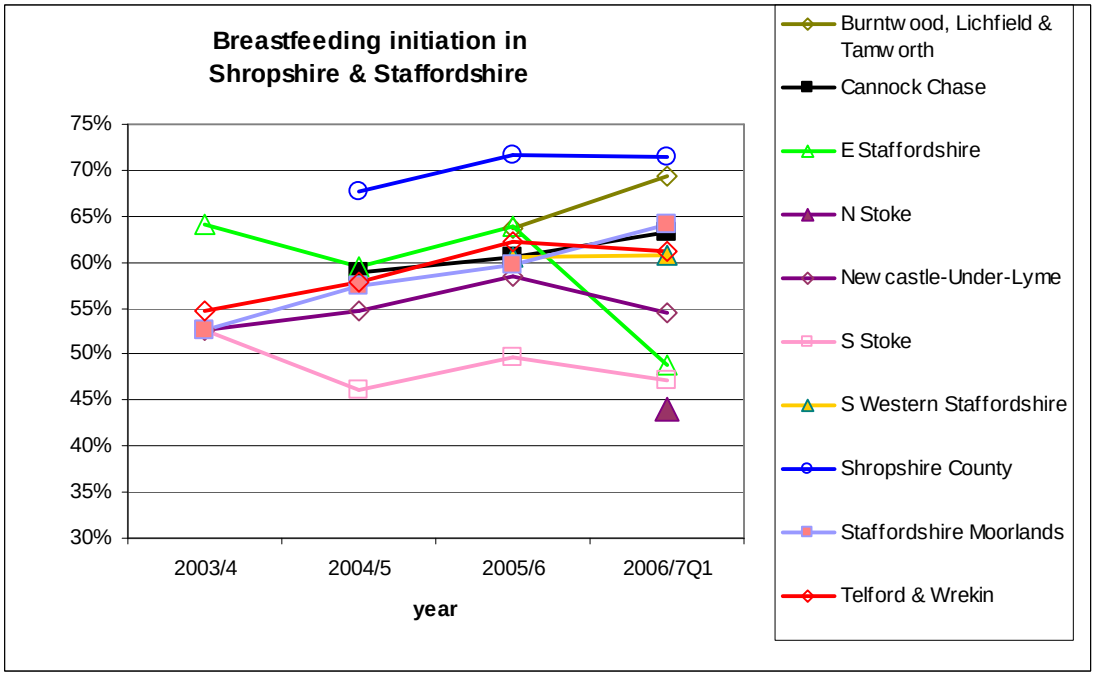
(e) Figures of smokers at end of pregnancy not included from PCTs more than 5% unknown numbers

Figure 12.12: Breastfeeding initiation rates across the former West Midlands South Strategic Health Authority area, 2003/4 to 1st quarter 2006/7



Source: LDPR [f]

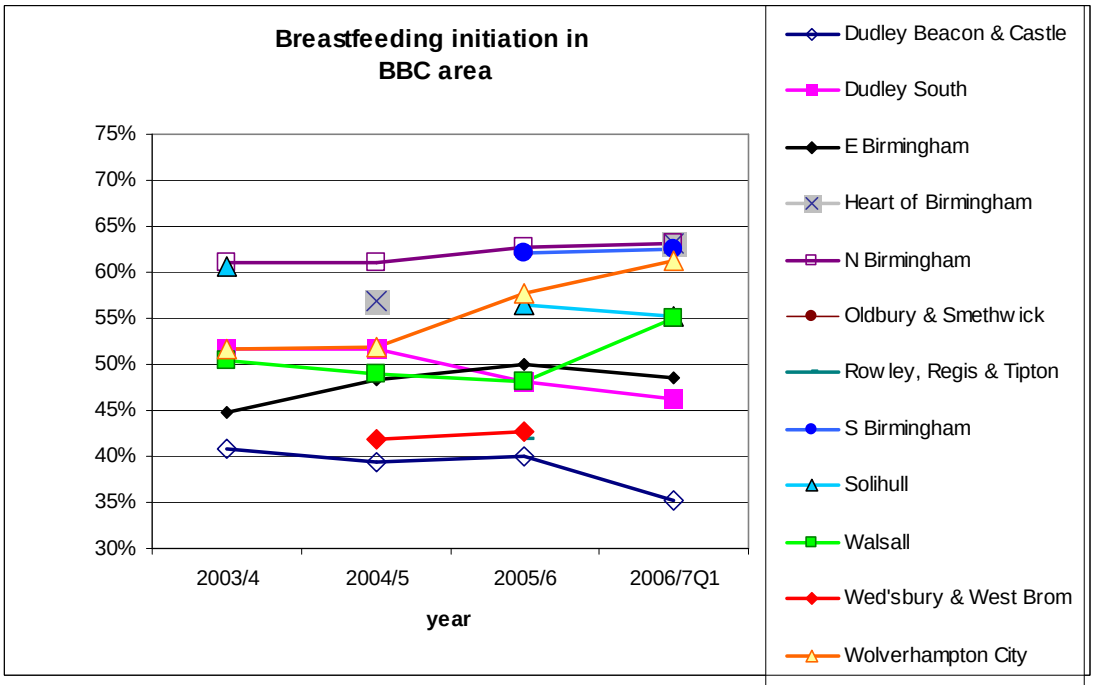
Figure 12.13: Breastfeeding initiation rates across the former Shropshire and Staffordshire Strategic Health Authority area, 2003/4 to 1st quarter 2006/7



Source: LDPR [f]

(f) Data not included from PCTs with more than 5% unknown numbers

Figure 12.14: Breastfeeding initiation rates across the former Birmingham and the Black Country Strategic Health Authority area, 2003/4 to 1st quarter 2006/7

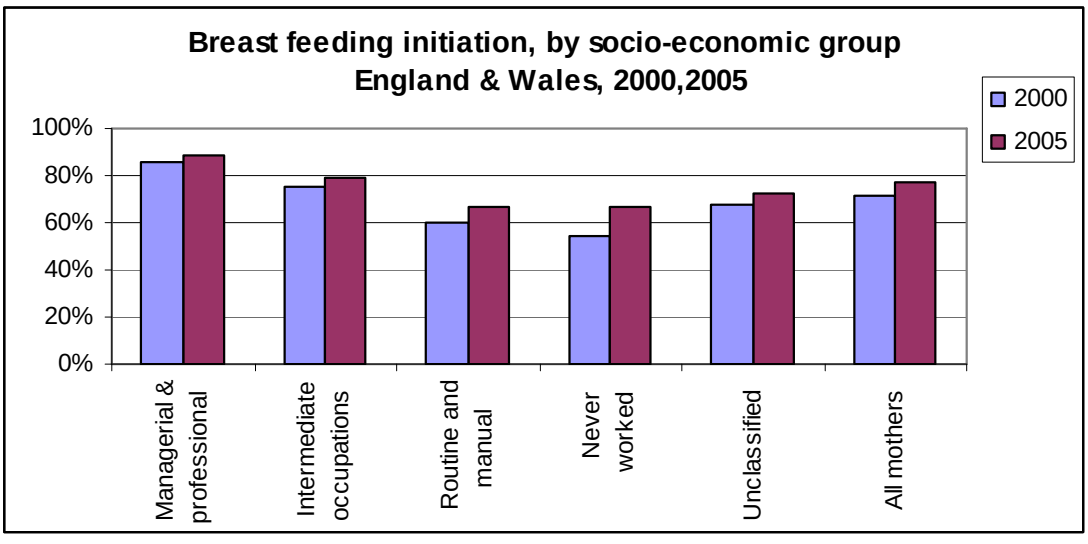


Source: LDPR (f)

(f) Data not included from PCTs with more than 5% unknown numbers

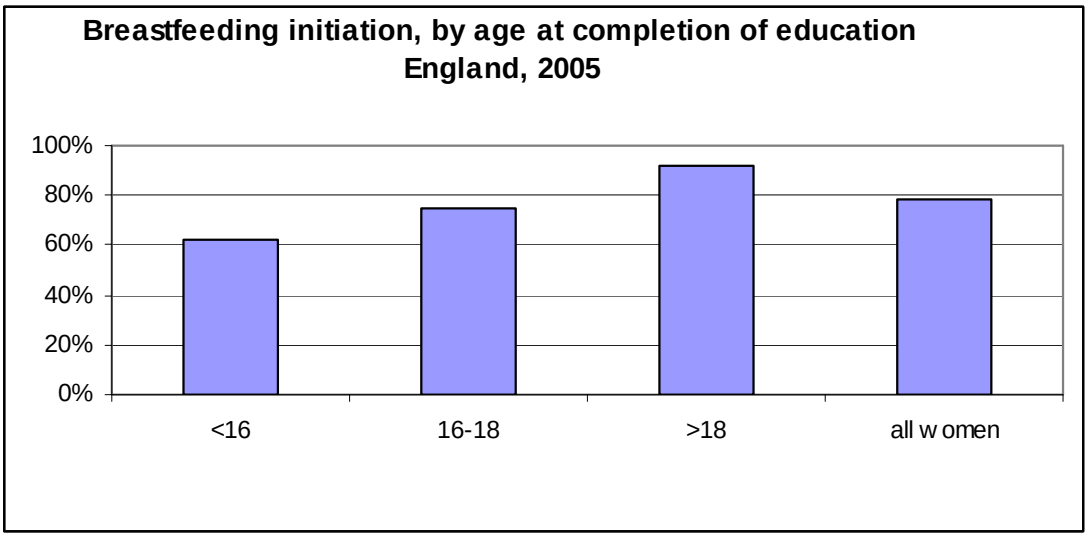
Data from the Infant Feeding Survey 2005 (7) show that women are more likely to breastfeed if they belong to higher socio-economic groups, have completed more years of education, are older, or are first time mothers (Figure 12.15 -12.18).

Figure 12.15: Breastfeeding initiation rates, by socio-economic group



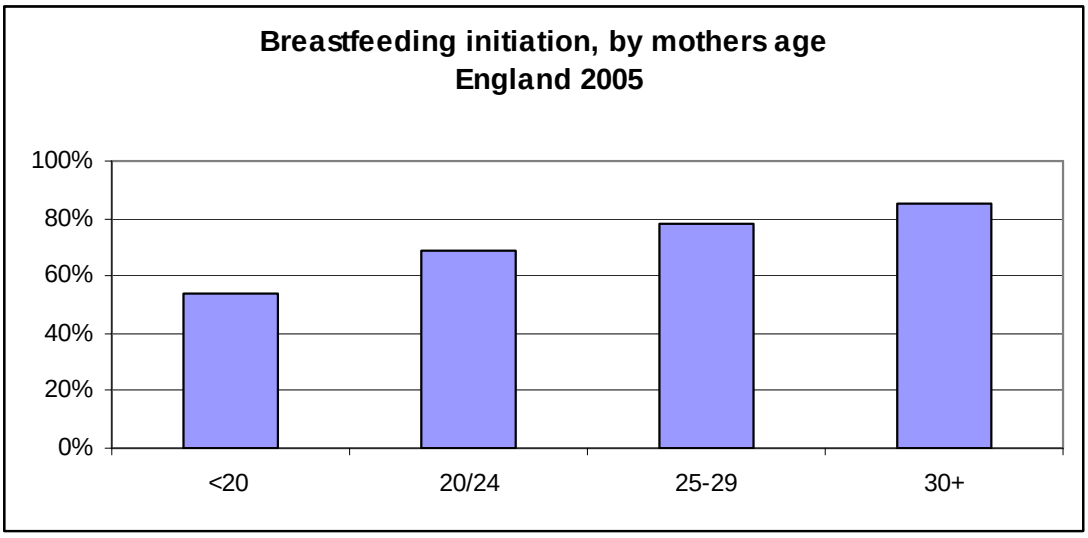
Source: IFS

Figure 12.16: Breastfeeding initiation rates, by age at completion of education (England, 2005)



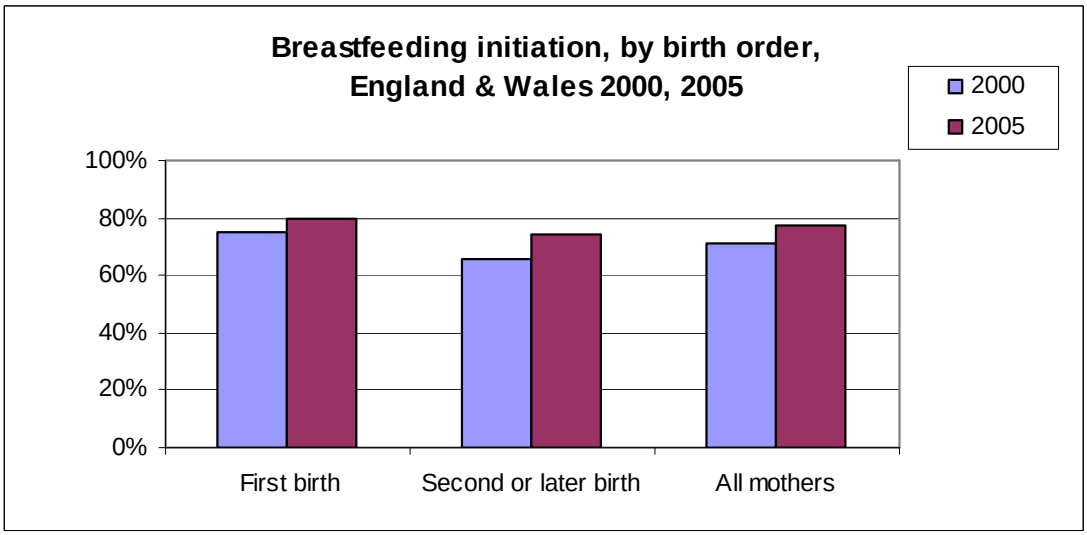
Source: IFS

Figure 12.17: Breastfeeding initiation, by mother's age (England 2005)



Source: IFS

Figure 12.18: Breastfeeding initiation, by birth order



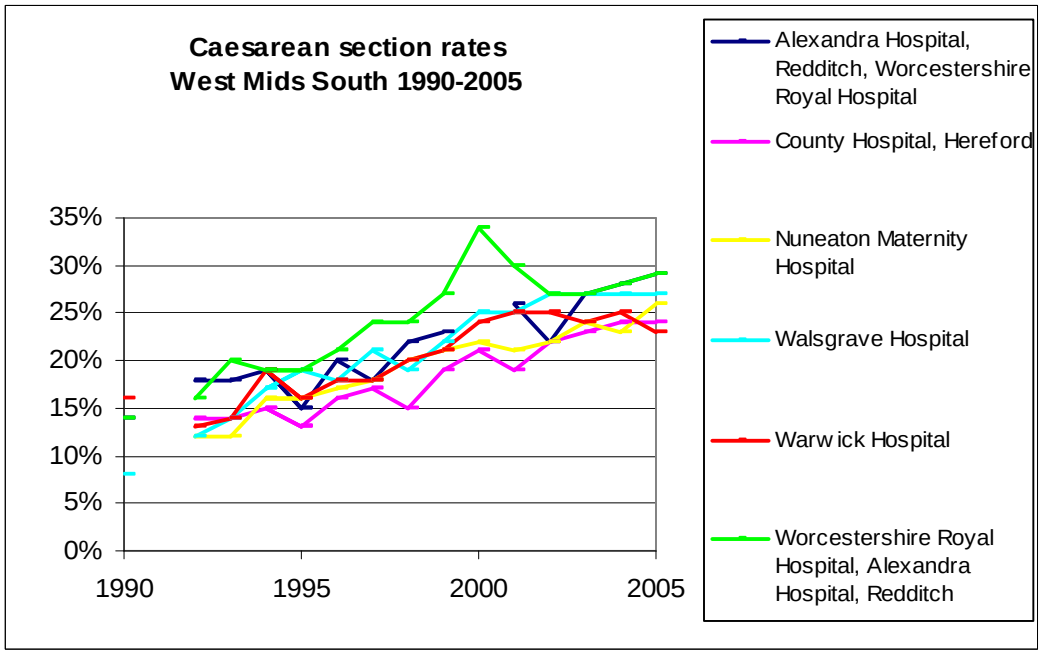
Source: IFS

PCTs with poor breastfeeding initiation rates may consider ways to increase rates, including requesting their providers to implement an externally evaluated programme such as the Baby Friendly Initiative, especially among younger women and those living in deprived communities. Good data on duration of breastfeeding are often not provided.

12.7 Caesarean Section Rates

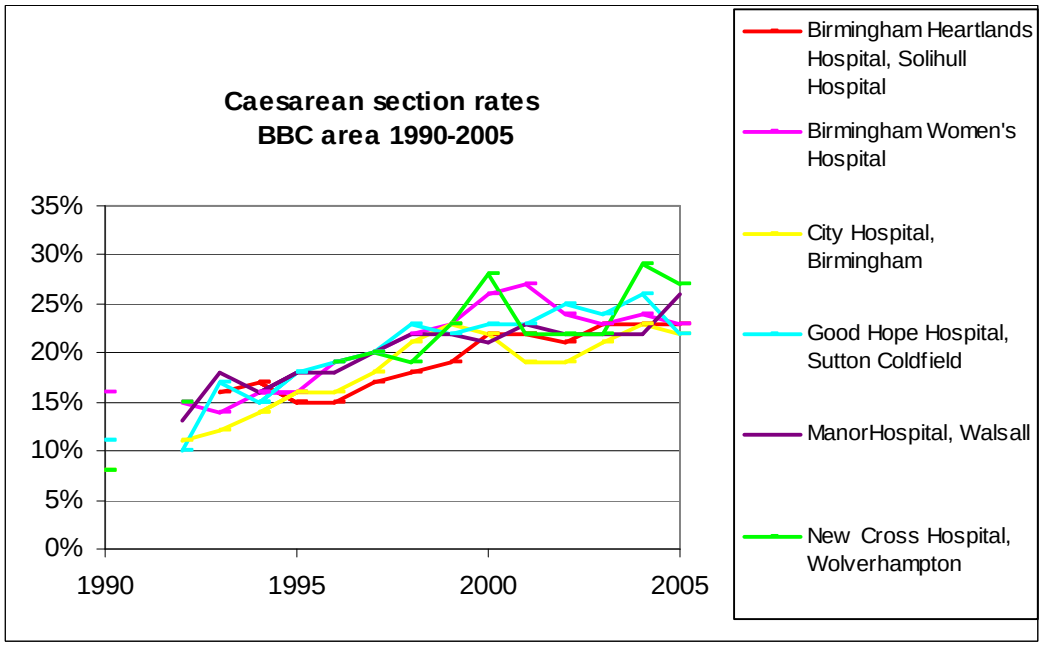
The proportion of women having a spontaneous vaginal delivery has reduced. In line with national trends, local rates of caesarean sections in obstetric units have risen in the last 15 years (Figure 12.19 to 12.21). In 2005, the Worcestershire Royal and Alexandra (29%), New Cross (27%) and Walsgrave (27%) hospitals had around double the rate of the Royal Shrewsbury (14%).

Figure 12.19: Caesarean rates by provider across previous West Midlands South Strategic Health Authority, 1990-2005



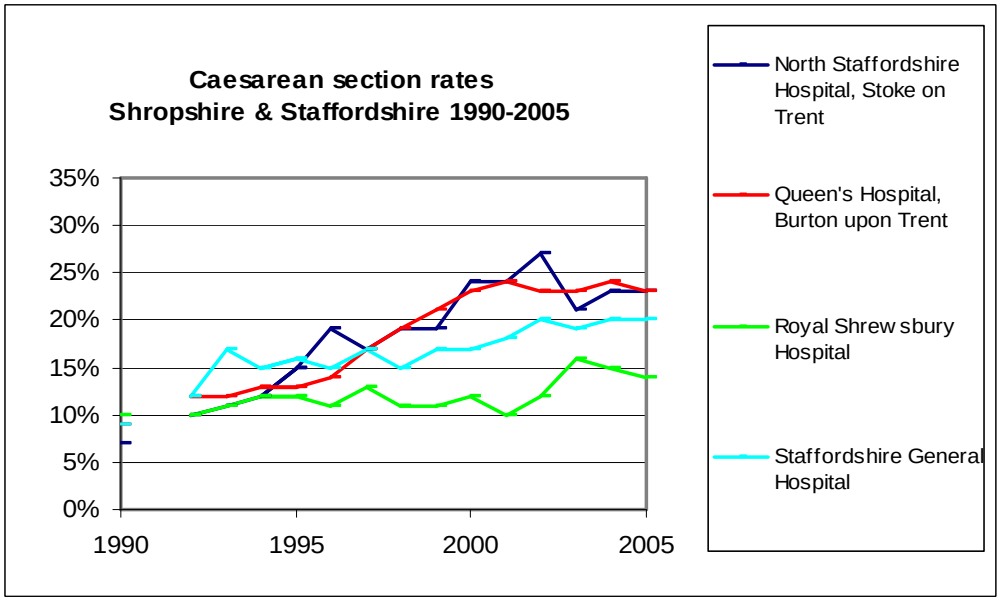
Source: HES*

Figure 12.20: Caesarean section rates by provider, across previous Birmingham and Black Country Strategic Health Authority, 1990-2005



Source: HES *

Figure 12.21: Caesarean section rates by provider across the previous Shropshire and Staffordshire Strategic Health Authority, 1990-2005



Source: HES *

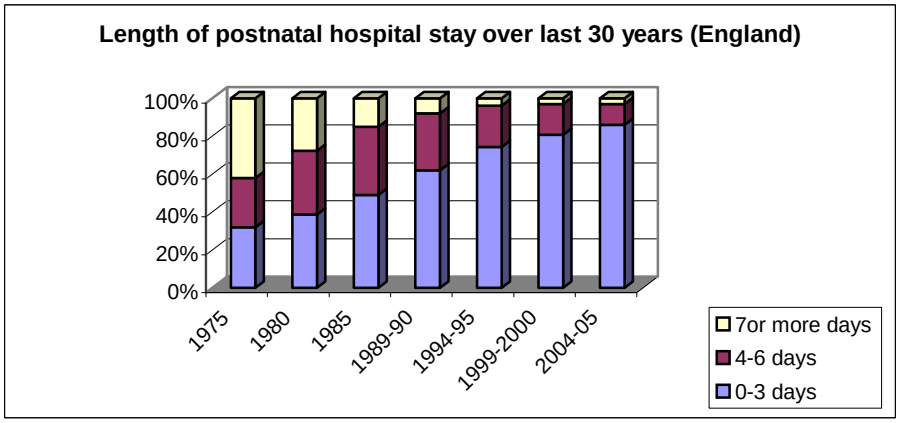
* Data missing for 1990 (Hereford County, Nuneaton Maternity Hospital and Birmingham Heartlands & and Solihull), 1991(all providers), 1992 (Birmingham Heartlands & and Solihull), 1993-95 (Wolverhampton City) and 2000 (Alexandra and Worcestershire Royal)

According to a survey by the NPEU (7), the most frequent reason for a caesarean section in primiparous women is failure to progress/disproportion (57.8%) but in multiparous women the biggest cause is previous caesarean section (45.7%).

12.8 Postnatal Services

Figure 12.22 shows a large drop over the last 30 years in length of time spent on the postnatal ward. Around 80% of women stay for less than 3 days.

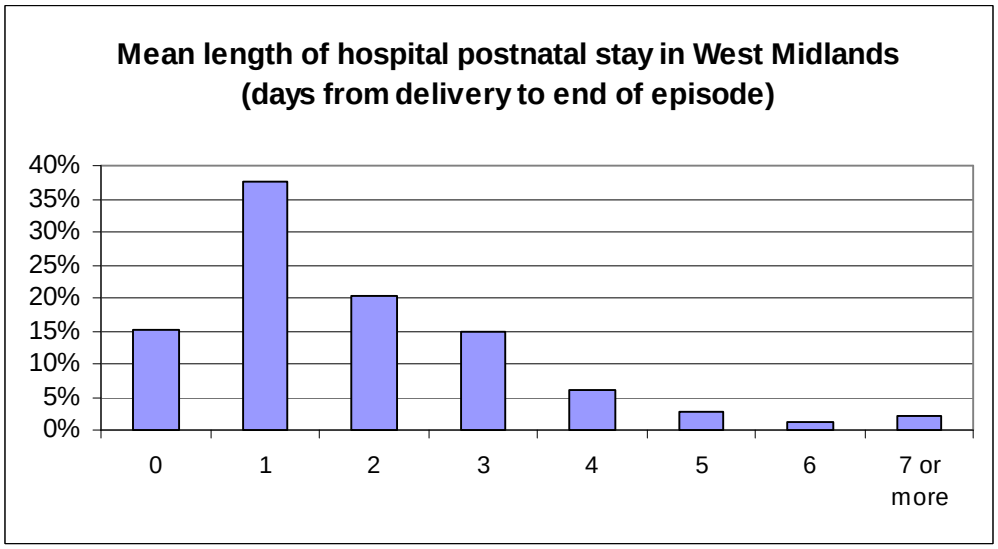
Figure 12.22: Length of postnatal hospital stay, England (1975 to 2005)



Source: HES

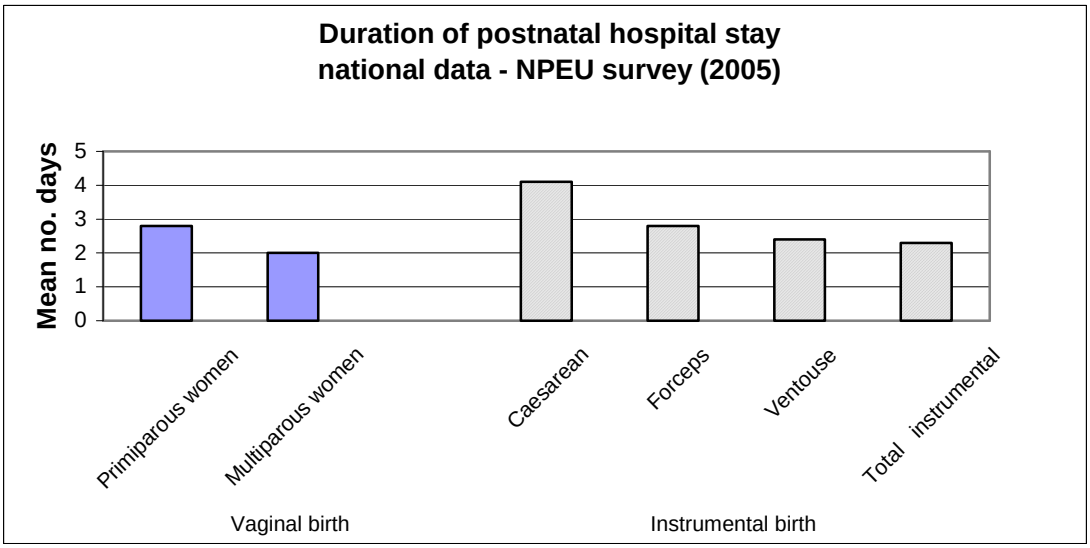
15% of women in the West Midlands stay for less than one day and a further 37% stay less than two days (Figure 12.23). A Cochrane review found the impact of reduced stay for healthy mothers and term infants to be inconclusive, with no evidence of adverse outcomes but methodological limitations of included studies meant that adverse outcomes could not be ruled out (8). Unsurprisingly, women who have had caesarean sections tend to have longer hospital stays (Figure 12.24). Early discharge in the UK takes place in the context of midwifery support at home.

Figure 12.23: Mean length of hospital stay in the West Midlands



Source: HES 2005/6

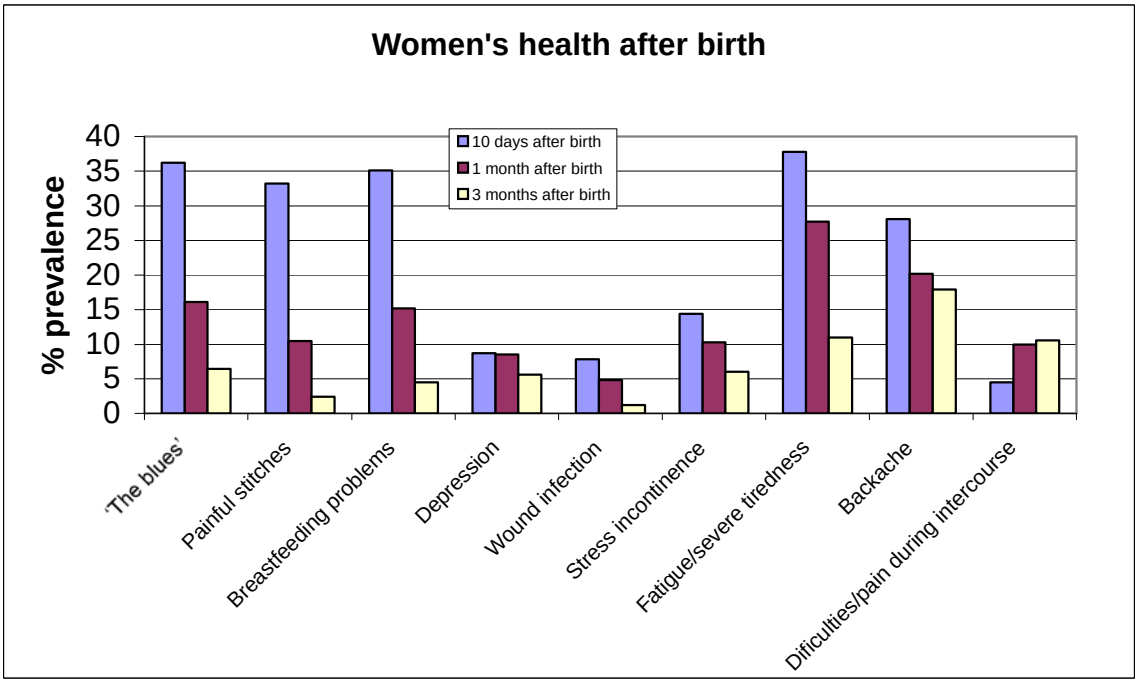
Figure 12.24: Mean length of hospital stay by parity and by type of birth (England, 2005)



Source: NPEU

Our own set of studies show that maternal ill heath following childbirth is common, can affect the quality of women's lives and is often undetected by health professionals (9;10). The NPEU survey (Figure 12.25) shows these morbidities are still prevalent and persistent. As higher prevalence rates have been shown in several other studies, e.g. postnatal depression of 13%(11), these morbidities appear to be a minimal estimate.

Figure 12.25: Women's health after birth



Source: NPEU

Postnatal health has had a low priority in recent years but there is good evidence that an improved universal service with emphasis on individual needs based care can be provided with little or no budgetary impact (12;13) as recommended by NSF and NICE guidelines

12.9 Conclusion

With over 65,000 women delivering in the region each year, maternity services are vital. Maternity services are seen by Government as a key public health measure to improve health and lower inequalities.

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KEY HEALTH DATA FOR THE WEST MIDLANDS 2006/07

A Report from the West Midlands Perinatal Institute

This year we are pleased to have been able to include a report from the West Midlands Perinatal Institute. The report is in the form of an additional stand-alone section yet it comprises valuable Key Heath Data on the region.