

# Prevalence of treated chronic diseases in general practice in England and Wales – trends over time and variations by the ONS area classification

Kath Moser and  
Azeem Majeed,  
ONS

## INTRODUCTION

Data from general practice are an important source of information on morbidity, prescribing and health service utilisation. The General Practice Research Database (GPRD) is a comprehensive source of data on the diagnosis and treatment of illness in general practice, including patient morbidity, prescriptions and referrals. The size, the wide geographical coverage and the longitudinal nature of the database make it invaluable for a wide range of purposes. Socio-economic data on patients are not available in GPRD. However the ONS area classification, which encapsulates socio-economic, demographic and geographic characteristics of areas, enables us to analyse data according to the type of area in which practices are located, thereby providing a means of looking at variations in morbidity and treatment.

This paper considers the prevalence of five treated chronic diseases, examines trends over the three-year period 1994 to 1996, and differentials across types of areas classified using the ONS area classification.

## METHODS

The General Practice Research Database was originally set up by the VAMP software company (now In Practice Systems Ltd) in 1987. In 1994 ownership passed to Government, initially the Department of Health and from April 1999 the Medicines Control Agency. The office for National Statistics has operated the database on their behalf. Practices were recruited on a volunteer basis by VAMP who aimed for a nationally representative population. There are currently (December 1998) 421 practices across the UK submitting data to the GPRD. Some of these practices are using new practice software (ViSion) and their data are not currently being used for analysis purposes.

In this study we examine the prevalence of treated chronic diseases in general practice, trends over time, and variations by the ONS 1991 area classification. The data for the study come from the General Practice Research Database; analyses are based on information from 288 practices in England and Wales, with a combined list size of over 2 million patients. Diseases considered are coronary heart disease, hypertension, depression or anxiety, and diabetes. The recorded prevalence of the treatment of these diseases increased between 1994 and 1996; for example, the prevalence of treated depression or anxiety in 1996 was 19 per cent higher than the 1994 level for males, and 15 per cent for females. There were large differentials by area type for treated coronary heart disease and treated depression or anxiety; prevalence in areas described as 'coalfields' and 'ports and industry' was over 40 per cent in excess of that in 'most prosperous' and 'services and education' areas.

**Table 1** Distribution of GPRD practices and patients by ONS area classification\*

ONS area classification group	No. of practices**	No. of patients (000s)	1996 population*** (000s)	GPRD coverage (%)
Coast and country	29	185	4,702	3.9
Mixed urban and rural	45	345	7,571	4.6
Growth areas	62	481	11,875	4.1
Most prosperous	8	54	1,664	3.2
Services and education	12	91	3,324	2.7
Resort and retirement	17	139	4,119	3.4
Mixed economies	18	126	3,469	3.6
Manufacturing	32	195	4,176	4.7
Ports and industry	14	87	2,360	3.7
Coalfields	47	325	6,681	4.9
Inner London	4	26	2,069	1.3
<b>ENGLAND AND WALES</b>	<b>288</b>	<b>2,053</b>	<b>52,010</b>	<b>3.9</b>

\* Based on 1996 health authorities.

\*\* Practices used in the analysis presented here.

\*\*\* 1996 mid-year population estimates (ONS).

Note: Slight discrepancies occur due to rounding.

Participating practices follow agreed guidelines<sup>1</sup> for the recording of clinical data and regularly submit anonymised, patient-based clinical records to the database. The records consist of information that is normally required for GPs to perform their clinical and contractual responsibilities. Data from each practice are routinely examined after each data collection (normally every six weeks) to monitor whether the research recording agreement has been followed. Practices failing the quality assessment criteria are informed of the areas in which they have failed so that they may improve their recording procedures and/or correct the records as appropriate. Data from practices whose data persistently fail to reach research criteria are not entered as valid data onto the database. Assessments of the quality of the morbidity data from GPRD have been published elsewhere.<sup>2,3</sup>

A total of 288 practices in England and Wales have been included in the

analysis presented here. Practices were included if they were submitting data to the GPRD throughout the period 1994 to 1996 and the data passed the GPRD quality checks. Only those practices recording data using OXMIS diagnostic codes were included.<sup>4</sup> A slightly larger proportion of practices had four or more partners than is the case nationally, and there were correspondingly fewer single-handed GPs. The practices had a total population of 2.1 million patients in 1996, representing 3.9 per cent of the population of England and Wales. There is some regional variation in population coverage from 2.8 per cent in North Thames to 5.3 per cent in West Midlands.<sup>1</sup> A comparison of the 1996 GPRD population by age and sex with the mid-1996 population of England and Wales shows that the age distributions are very similar. The distribution of GPRD practices and population by area classification (Table 1) shows that areas classified as 'coalfields', 'manufacturing' or 'mixed urban and rural' are over-represented while Inner London is very under-represented. There are four practices from Inner London included in the analysis representing only 1.3 per cent of the population of Inner London.

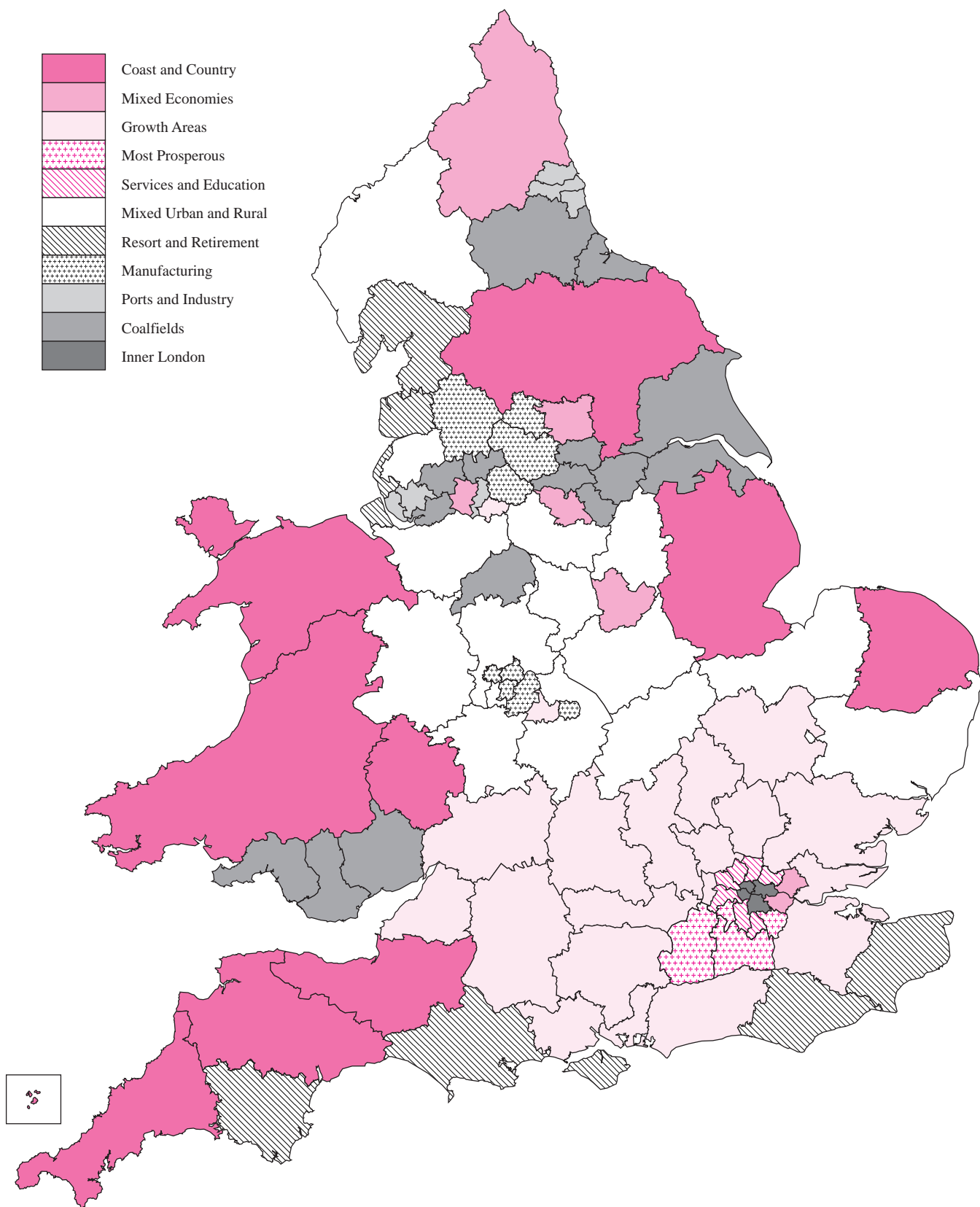
The ONS area classification uses a wide range of socio-economic, geographic and demographic variables from the 1991 Census to group together areas with similar characteristics.<sup>5</sup> Health authorities have been allocated to groups as defined in the classification, e.g. coast and country, growth areas. Figure 1 shows the distribution of health authorities in England and Wales by the ONS area classification. Group names generally reflect the socio-economic, and sometimes demographic and geographic, attributes of their members but are not precise descriptions of all group members. Here practices are classified by the area type of the health authority (April 1996 boundaries) in which they are situated.

In this paper we investigate the prevalence of five treated chronic diseases, coronary heart disease, hypertension, depression or anxiety, and diabetes (insulin and non-insulin treated). Patients are included in the analyses if they were alive and permanently registered at the practice at 31 December of the analysis year, and had been registered for at least six months before that date. As a result only survivors are included and the requirement to be registered for at least six months means that infants and the more mobile population groups will be

**Table 2** Prevalence of treated disease per 1,000 patients by age and sex: 1996

	Age group								Age-standardised rate (all ages)	No. of cases (all ages)
	16-24	25-34	35-44	45-54	55-64	65-74	75-84	85+		
<b>Coronary heart disease</b>										
M	0.0	0.3	4.7	27.1	90.7	170.4	213.8	196.0	34.7	34,545
F	0.0	0.2	1.5	12.2	46.5	106.9	160.5	170.7	20.8	28,714
<b>Hypertension</b>										
M	0.5	3.7	17.2	59.9	137.5	205.1	200.1	118.4	48.1	46,465
F	1.0	4.7	16.5	61.2	143.9	224.7	255.5	165.4	52.5	61,702
<b>Depression or anxiety</b>										
M	17.4	34.8	47.1	57.7	62.8	60.9	77.1	86.6	36.2	34,031
F	45.3	85.2	109.9	127.6	132.2	140.9	160.5	160.1	81.9	83,196
<b>Insulin treated diabetes</b>										
M	3.4	4.5	6.0	6.3	9.0	10.5	9.7	6.3	5.1	4,777
F	3.1	3.9	4.9	5.0	7.5	9.2	8.5	4.7	4.3	4,339
<b>Non-insulin treated diabetes</b>										
M	0.1	0.5	2.8	9.8	28.0	41.8	44.1	40.8	9.6	9,302
F	0.1	0.5	2.2	6.7	20.5	30.5	34.3	28.8	7.0	8,370
<b>No. of patients</b>										
M	94,974	140,244	132,004	127,516	90,582	72,181	38,296	8,799	888,855	
F	89,219	138,871	127,919	123,567	90,195	83,652	60,800	23,997	914,515	

**Figure 1** Map of health authorities in England and Wales by ONS area classification



Source: Key Health Statistics from General Practice 1996 (ONS, 1998).

**Table 3** Prevalence of treated disease by sex: 1994–96  
Age-standardised rates (all ages) per 1,000 patients (95 per cent confidence interval)

		1994		1995		1996	
		Rate/1,000	CI	Rate/1,000	CI	Rate/1,000	CI
Coronary heart disease	M	33.4	(33.0, 33.7)	34.0	(33.7, 34.4)	34.7	(34.3, 35.0)
	F	20.2	(20.0, 20.5)	20.6	(20.4, 20.9)	20.8	(20.6, 21.1)
Hypertension	M	43.9	(43.4, 44.3)	46.0	(45.5, 46.4)	48.1	(47.7, 48.5)
	F	48.0	(47.6, 48.5)	50.5	(50.0, 50.9)	52.5	(52.1, 52.9)
Depression or anxiety	M	30.5	(30.1, 30.9)	33.1	(32.8, 33.5)	36.2	(35.8, 36.6)
	F	71.2	(70.6, 71.7)	76.9	(76.3, 77.4)	81.9	(81.4, 82.5)
Insulin treated diabetes	M	4.7	(4.6, 4.9)	4.9	(4.8, 5.1)	5.1	(5.0, 5.3)
	F	4.0	(3.8, 4.1)	4.2	(4.0, 4.3)	4.3	(4.2, 4.5)
Non-insulin treated diabetes	M	8.6	(8.4, 8.8)	9.1	(8.9, 9.3)	9.6	(9.4, 9.8)
	F	6.5	(6.3, 6.6)	6.8	(6.6, 7.0)	7.0	(6.9, 7.2)

under-represented. With the exception of diabetes, cases were defined as patients who had a diagnosis ever-recorded *and* were treated with relevant medication in the last 12 months. Due to some erroneous diabetic diagnoses recorded on the database it was decided to identify diabetic cases using treatment alone; the fact that insulin and oral anti-diabetic drugs are only used for the treatment of diabetes made this possible, but it does mean that diet-controlled diabetics are not included. Whilst in general the methods adopted here are likely to underestimate true annual disease prevalence they do have the advantage of indicating that the diagnosis is sufficiently clear to warrant treatment by the GP and that the condition is currently active. The measure derived from these case definitions is referred to as the prevalence of treated disease.

Age- and sex-specific rates and directly age-standardised rates (using the European standard population) are presented for 1996 for all disease groups. As the diseases studied here occur predominantly amongst adults, age-specific rates are shown only for ages 16 and over; however

age-standardised rates are calculated using the whole age range including children. Age-standardised rates are used to illustrate trends 1994–1996, and variations by the area classification. Further details on the exact methodology used are given elsewhere.<sup>1</sup>

**RESULTS**

Table 2 shows the prevalence of treated disease in 1996 by age and sex. Some points of particular interest are mentioned here. There is a very high prevalence of treated depression or anxiety among women (82 per 1,000 females), more than twice the rate of men (36 per 1,000 males); 11 per cent of women aged 35–44 were treated for depression or anxiety rising to 16 per cent at ages 75 and over. The data for treated coronary heart disease show the well-established increase in prevalence with age and a large sex differential with males experiencing 66 per cent higher prevalence than females. The sex differential was especially high in the younger to middle ages, with men having a prevalence rate over twice that of women. One-fifth of men and one-sixth of women

**Table 4** Prevalence of treated disease by sex and ONS area classification: 1996  
Age-standardised rates (all ages) per 1,000 patients

	Coronary heart disease		Hypertension		Depression or anxiety		Insulin treated diabetes		Non-insulin treated diabetes	
	M	F	M	F	M	F	M	F	M	F
Coast and country	35.2	19.4	48.1	52.8	39.8	85.7	5.5	4.6	8.6	6.2
Mixed urban and rural	33.1	20.1	48.6	53.0	34.2	80.9	5.0	4.5	9.6	6.9
Growth areas	30.6	16.8	46.6	50.1	33.4	77.7	5.0	4.1	9.2	6.6
Most prosperous	25.8	15.7	47.5	56.0	27.0	63.2	4.5	4.0	8.9	6.6
Services and education	29.8	17.9	44.3	47.8	26.6	64.5	4.7	4.3	11.9	8.6
Resort and retirement	33.6	18.8	48.6	52.7	38.7	81.0	5.4	3.8	8.5	6.3
Mixed economies	36.7	23.6	48.2	54.5	36.6	83.2	4.9	4.6	9.2	6.5
Manufacturing	35.3	23.0	48.8	56.1	37.7	83.9	5.3	5.0	11.1	9.4
Ports and industry	43.0	28.5	50.3	53.8	41.8	95.4	5.3	5.0	9.2	6.9
Coalfields	42.0	26.7	50.3	53.4	41.2	91.6	5.3	4.2	9.9	7.4
Inner London	24.8	14.7	37.8	49.0	35.4	73.7	4.9	3.6	11.3	8.4
ENGLAND AND WALES	34.7	20.8	48.1	52.5	36.2	81.9	5.1	4.3	9.6	7.0

aged 75 and above were being treated for coronary heart disease. Twenty per cent of men and 23 per cent of women aged 65 and over were on treatment for hypertension. For all diseases considered here (with the exception of coronary heart disease for women and depression or anxiety for both sexes) the prevalence of treatment amongst the very elderly (85 and over) is lower than that for the 75–84 age group.

The prevalence of all the treated diseases included in this analysis increased over the three year period 1994 to 1996, as measured by the age-standardised rate for the whole age range (Table 3). The increase in treated depression or anxiety was especially large with a prevalence in 1996 19 per cent higher than the 1994 level for males, and 15 per cent higher for females. These increases were particularly large in younger adults, 38 per cent for men and 31 per cent for women aged 16–24, 33 per cent and 27 per cent respectively for ages 25–34, and 22 per cent and 20 per cent for ages 35–44. There were increases over the same period of the order of 10 per cent for hypertension, and both types of diabetes. Rates of treated hypertension increased greatly amongst the elderly where 1996 rates were 20 per cent higher than 1994 levels for men aged 75–84 and 17 per cent for women aged 75–84, and 35 per cent and 29 per cent respectively amongst those 85 and over. The overall increase in treated coronary heart disease was about 3 per cent; among men the increase was most notable at ages 65–74 (4 per cent) and 75–84 (8 per cent), and among women at ages 75–84 (4 per cent) and 85 and over (7 per cent).

The variations in treated disease prevalence by the ONS area classification are shown in Table 4. For coronary heart disease and depression or anxiety there are particularly large variations by area type. The prevalence of treated coronary heart disease in areas classified as ‘most prosperous’, ‘growth areas’ and ‘services and education’ was low with rates at least 10 per cent below those in England and Wales as a whole (Figure 2). Areas ‘ports and industry’ and ‘coalfields’ had an excess prevalence for females of around 30 per cent higher than England and Wales, and just over 20 per cent for males; the high prevalence in these areas is particularly concentrated in the 35 to 64 age range.

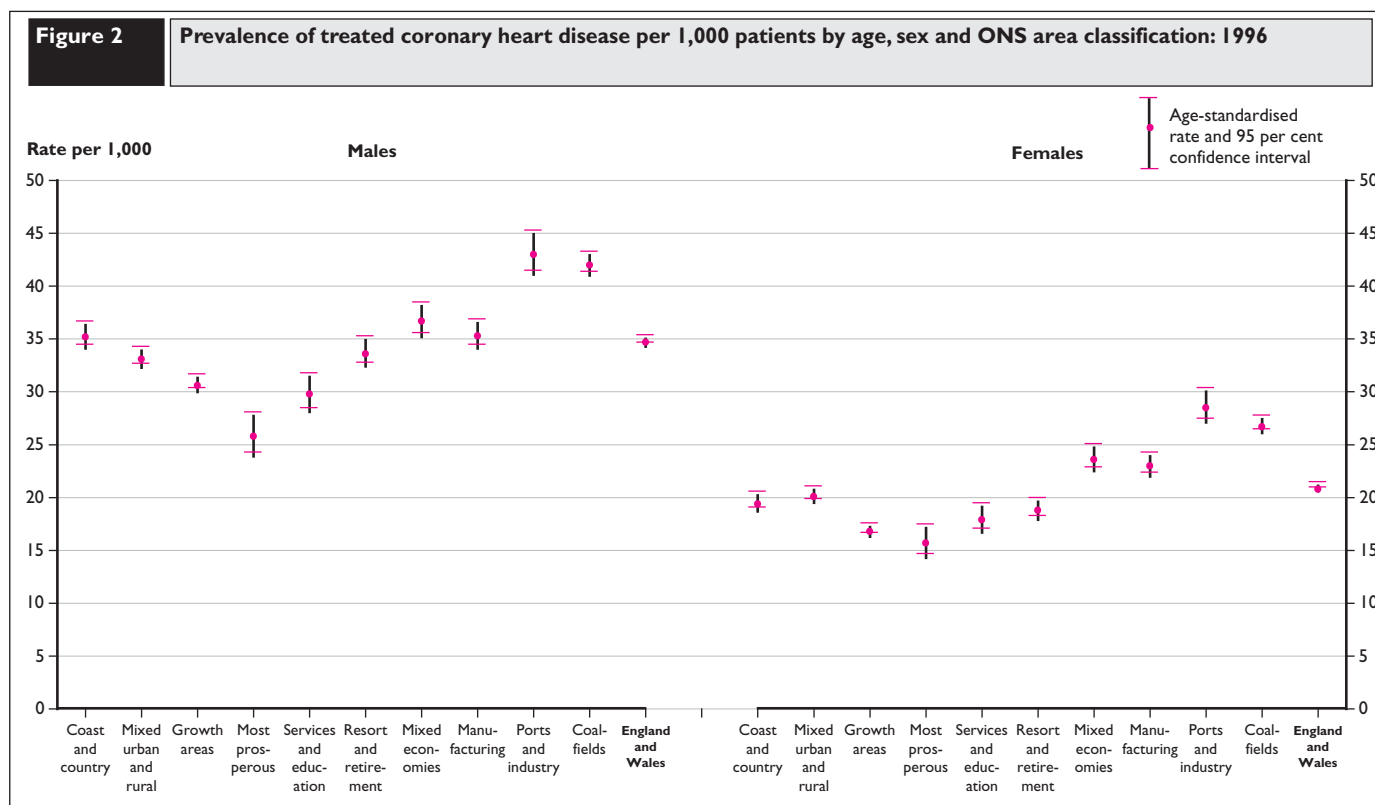
Low rates of treated depression or anxiety were found in ‘most prosperous’ and ‘services and education’ areas where rates were more than 20 per cent below those in England and Wales (Figure 3). In contrast ‘coalfields’ and ‘ports and industry’ had rates in the region of 15 per cent higher than England and Wales. In the case of ‘coalfields’ prevalence was raised throughout the age range, while in ‘ports and industry’ areas excess prevalence was more evident in the younger and middle ages.

### DISCUSSION

The General Practice Research Database provides invaluable information on the prevalence of treated chronic diseases as recorded in general practice. This paper describes an initial exploratory analysis of some of these data, their strengths and weaknesses and the methodology used, and identifies areas for further investigation and study. Where possible we have tried to compare our findings with those from other studies hence providing additional information on the validity of GPRD data and plausibility of the results.

### Some strengths and weaknesses of the data

GPRD data are obtained from those recorded by GPs in the course of their daily work. The recording guidelines ask for all prescriptions, and all significant morbidity consultations, to be entered in a patient’s computer record. No guidelines are given to doctors concerning diagnostic definitions and they use their own judgement in the recording of clinical information. GPRD prescribing information refers to prescriptions issued to patients; there is no information on whether the drugs have been dispensed or not. Neither is there information on medicines purchased over the counter. The only case here where this may be relevant is the use of aspirin in the treatment of coronary heart disease. Those entitled to free prescriptions are likely to receive a prescription for aspirin while others would buy it over the counter. This may have a bearing on some of the area type differentials, but would affect only those coronary heart disease patients who were only being prescribed aspirin for their condition.



The case definitions used in this analysis indicate that the diagnosis is sufficiently clear to warrant treatment by the GP and that the condition is currently active. The derived measures refer to the prevalence of treated disease (that is, those being treated for a specified condition) and as such are likely to under-estimate the true prevalence of the disease. For example, diet-controlled diabetics are not included in our analysis, nor are those with a diagnosis of depression or anxiety who are not receiving medication for their condition. In addition the analysis excludes patients who die during the analysis year and consequently the treated prevalence of some diseases (for example, coronary heart disease) is likely to be under-estimated.

### General findings

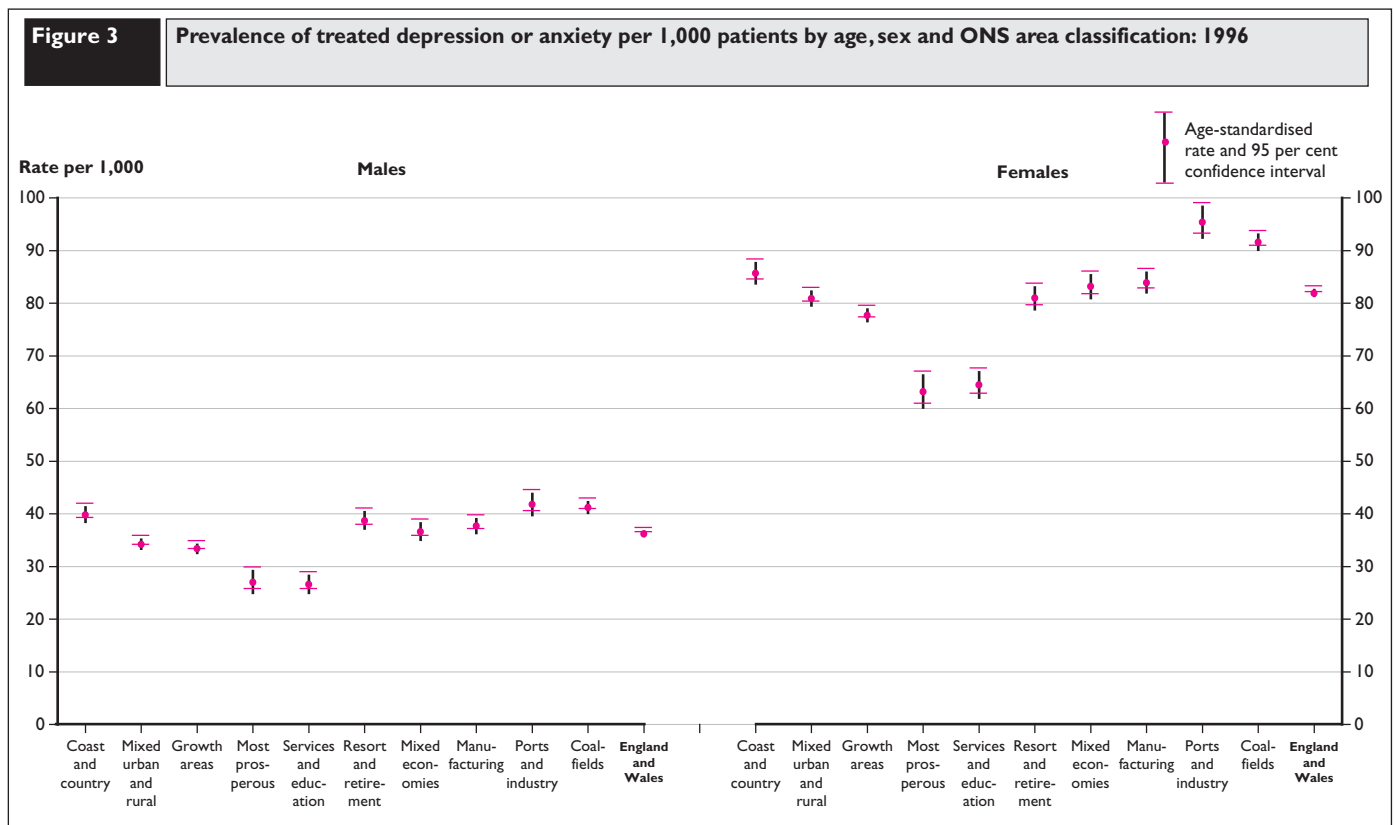
The analysis presented here suggests that, in terms of the chronic diseases examined, the prevalence of treated disease has increased over the period 1994 to 1996. This increase has been most evident for depression or anxiety, hypertension and diabetes. We will discuss some general points relating to this trend, and will then go into more detail in relation to each of the diseases studied. Although this is a short period over which to examine time trends this was all that was available at the time.

The observed trend could reflect a real increase in treated disease over the period 1994 to 1996, which in turn could result from increasing prevalence of disease, or from changes in clinical practice, such as the loosening of diagnostic criteria or an increasing propensity to prescribe medication for a disease. Improvements in GP recording of diagnoses and prescriptions could play a part in the apparent trend but if this were the sole explanation we would expect the increases to be similar across all ages, which they are not. With automated registration links between practices and the local health authority register, practice lists have been becoming more accurate over recent years as list inflation is reduced. This may result in the denominators in our analysis containing fewer 'ghost' patients in 1996 than in 1994 which could give rise to an apparent increase in prevalence of treated disease over time. Analysis of

GPRD data on peptic ulcers<sup>1</sup> shows a slight *decrease* in treated prevalence over the three-year period. If the time trends we observe for the five diseases covered in this paper were solely explained by improvements in recording, and/or increasing accuracy of practice lists, we would expect the peptic ulcer data to be similarly affected. As well as the explanations outlined above, more consideration is needed to clarify ways in which the methodology used may in itself have a bearing on the time trends.

Various factors could be contributing to the lower prevalence of treated disease in those aged 85 and over as compared to those aged 75–84. There is likely to be some out-selection of the least healthy from our general practice based data as long-term hospital patients will not feature; in addition recording of diagnoses and prescriptions arising from home visits and visits to residential homes may be under-reported. There is no evidence of substantial list inflation among this age group as the population age-sex distributions match those of England and Wales very closely. It seems likely that a substantial amount of the observed age pattern reflects lower treatment rates among the very elderly, especially in the case of diseases such as hypertension which are known to increase with age.

There is no patient information on socio-economic characteristics in the GPRD. The ONS area classification groups together areas with similar socio-economic, geographic and demographic characteristics and therefore provides us with a way of investigating variations in treated disease based on the type of area in which practices are located. This analysis shows large differentials in the prevalence of treated depression or anxiety and coronary heart disease across different types of area. For both these diseases, and both males and females, prevalence in area types 'coalfields' and 'ports and industry' was at least 40 per cent higher than in 'most prosperous' and 'services and education' areas. Using the ONS area classification in this way can be valuable<sup>6</sup> but it is a relatively crude approach, especially when, as here, area type is assigned to practices using area type of the health authority in which each practice is situated. This can be misleading because



health authorities are large and often very heterogeneous areas, and the GPRD practices within any one authority may be few in number and unrepresentative of the whole. Further work is planned using some alternative approaches to address these issues. The above analysis can be repeated using area type of the *ward* location of practices rather than health authority; this would be a more sensitive indicator of the area served by the practice, even though patients are often scattered very widely across many wards. Secondly, deprivation measures can be attributed to practices on the basis of the electoral ward in which they are located.<sup>7,8</sup> Patient postcodes are not available in GPRD hence these approaches are limited to practice location.

### Disease-specific findings and comparison with other studies

**Diabetes:** In 1996, after age adjustment, 1.47 per cent of men and 1.13 per cent of women received treatment with either insulin or oral anti-diabetic drugs. The age adjusted male:female ratio in prevalence of 1.30:1 is consistent with that reported in the Poole Diabetes Study (age adjusted ratio 1.23:1) and with an analysis of pooled audit data from 259 general practices in England and Wales (crude ratio 1.15:1).<sup>9,10</sup> The age-adjusted prevalence of diabetes in the Poole Diabetes Study 1996 was 1.65 per cent (1.80 per cent in men and 1.50 per cent in women).<sup>9</sup> In an analysis of pooled audit data from studies carried out between 1993 and 1995, the crude prevalence of diabetes was reported as 1.46 per cent.<sup>10</sup> Unlike our own study, both these studies included diet-controlled diabetics (24 per cent of all diabetic patients in the Poole study, 23 per cent in the pooled audit data). Adjusting our prevalence rates to take diet-controlled diabetics into account is not straightforward as we selected all those on medication during the course of one year. Inevitably, some diet-controlled diabetics would be on medication at some point during the year and hence we would expect our identified diabetic cases to constitute more than 77 per cent (100 per cent minus 23 per cent) of the true diabetic population in our study. Our estimate of the total prevalence of diabetes in the GPRD population therefore varies between 1.47 per cent and 1.91 per cent in men and 1.13 per cent and 1.47 per cent in women, consistent with the findings of the two other studies.

Our finding of an increase in the prevalence of drug-treated diabetes between 1994 and 1996 is also consistent with what is known about the epidemiology of diabetes.<sup>11</sup> For example, among a sub-set of practices (for whom time trend data were available) in the Poole Diabetes Study the age adjusted prevalence of diabetes was found to have increased by 48 per cent between 1989 and 1996, from 1.05 per cent to 1.55 per cent.<sup>12</sup> The omission of diet-controlled diabetics from our study is likely to have the greatest impact in our estimates of diabetes in the elderly; this may explain why we found the prevalence of treated diabetes to be lower in people aged 85 years and over than in those aged 75–84.

**Anxiety and depression:** The prevalence of adults (aged 16–64) receiving drug treatment for depression or anxiety in 1996 was 44 per 1,000 men and 101 per 1,000 women. There is no directly comparable data against which to compare these rates but the OPCS Surveys of Psychiatric Morbidity in Great Britain provide some data. In the survey of 1993 the prevalence rates for neurotic disorders (a category which includes anxiety and depression) in the week before interview, among people aged 16–64 years living in private households, was 123 per 1,000 in men and 195 per 1,000 in women.<sup>13</sup> About 9 per cent of those with a neurotic disorder were receiving drug treatment when interviewed; although this is considerably lower than our findings, it relates to treatment at time of interview as opposed to during the last 12 months in our study. As in our own study, the likelihood of drug treatment increased with age, particularly for depression.<sup>14</sup>

The increase in the percentage of people treated for depression and anxiety between 1994 and 1996 probably reflects an increase in the use of antidepressant drugs by general practitioners rather than a true increase in the prevalence of these disorders. The *Defeat Depression* initiative was introduced by the Royal College of General Practitioners to raise awareness of depression amongst both the public and health professionals.<sup>15</sup> Other recent initiatives have aimed to remove the stigma associated with depression. These initiatives, combined with the development of new antidepressant drugs which are better tolerated by patients, and publicity in the popular media, are likely to have led to an increase in the number of people receiving drug treatment for depression.<sup>16</sup>

We are clouding the issue by combining depression and anxiety in our analysis as they refer to different groups of conditions. Prescribing data from the GPRD shows that between 1994 and 1996 there has been an increase in the percentage of persons receiving antidepressants, but no increase in the percentage receiving hypnotic or anxiolytic drugs, or drugs used in psychoses.<sup>1</sup>

**Hypertension:** The percentage of adults (aged 16 and over) with treated hypertension in 1996 was 6.6 per cent of men and 8.4 per cent of women. This compares with data from the Health Survey for England 1996 where between 4.2 per cent and 12.3 per cent of men aged 16 years and over and between 5.3 per cent and 14.5 per cent of women were on antihypertensive treatment.<sup>17</sup> The lower figures refer to people with high blood pressure, while the higher figures also include those without high blood pressure, some of whom may have controlled hypertension. Unlike our own study the Health Survey for England showed little increase in the percentage of adults being treated for hypertension between 1994 and 1996.

**Coronary heart disease:** The percentage of adults (aged 16 and over) with treated coronary heart disease in 1996 was 4.9 per cent of men and 3.9 per cent of women. This compares with the reported prevalence of coronary heart disease of 6.0 per cent of men and 4.1 per cent of women in the 1994 Health Survey for England.<sup>18</sup> About 20 per cent of patients with coronary heart disease in the Health Survey for England were not receiving drug treatment; this makes the prevalence of treated coronary heart disease from the two studies broadly comparable.

### CONCLUSIONS

General practice can provide useful information on the prevalence of treated chronic disorders but the limitations of the data need to be remembered when interpreting the results of studies such as this. The General Practice Research Database contains data collected routinely for a different purpose, that is the clinical management of patients registered in general practice. It is an extremely valuable data source but there are inevitably difficulties and constraints that arise from using, for research purposes, data arising from an administrative process – as opposed to that obtained from a survey designed specifically for the purpose. Nevertheless the GPRD is at its most valuable in monitoring the health of the nation in its interaction with primary care. It should help the understanding of the demand for care by different sections of the community and the implications for other parts of the NHS.

This study has highlighted some ways in which this type of analysis could be developed in future work; for example, in using deprivation scores and the ONS area classification applied to the ward location of practices, and in analysing anxiety and depression as separate conditions. Further work is also needed on developing and refining the methodology used. Work is planned on further validation of the information recorded in the GPRD, comparing the data with external

sources of information where possible. The new information strategy for the NHS has emphasised the importance to the NHS of data derived from general practice.<sup>19</sup> However much remains to be done to ensure that the data entered on general practice computers by members of the primary healthcare team are accurate, comprehensive and recorded consistently.

## Key points

- The General Practice Research Database is a comprehensive and large source of longitudinal data on the diagnosis and treatment of illness by GPs.
- Data from 288 practices and over 2 million patients are analysed in this paper.
- The recorded prevalence of five common treated chronic diseases increased between 1994 and 1996.
- The prevalence of people being treated for depression or anxiety in 1996 was 19 per cent higher than the 1994 level for males, and 15 per cent for females; there was a 10 per cent increase over the same period in the prevalence of treated hypertension and diabetes.
- Over 20 per cent of those aged 65 and over were being treated for hypertension in 1996.
- For treated coronary heart disease, and treated depression or anxiety, prevalence in 'coalfields' and 'ports and industry' areas was 40 per cent higher than in 'most prosperous' and 'services and education' areas.

## REFERENCES

- 1 Office for National Statistics. *Key Health Statistics from General Practice 1996 Series MB6 No.1*. ONS (London: 1998).
- 2 Hollowell J. The General Practice Research Database: quality of morbidity data. *Population Trends* 87 (1997), 36–40.
- 3 Hollowell J. *General Practice Research Database: scope and quality of data*. OPCS (London: 1994).
- 4 Perry J (ed). *Oxmis problem codes for primary medical care*. Oxmis Publications (Oxford: 1978).
- 5 Wallace M and Denham C. *The ONS classification of local and health authorities of Great Britain*. Studies on Medical and Population Subjects No. 59. HMSO (London: 1996).
- 6 Department of Health. *Public Health Common Data Set 1996: England, Volume I*. DH (London: 1997).
- 7 Majeed A, Cook D, Poloniecki J and Martin D. Using data from the 1991 census. *British Medical Journal* 310 (1995), 1511–1514.
- 8 Haynes RM, Lovett AA, Gale SH, Brainard JS and Bentham G. Evaluation of methods for calculating census health indicators for GP practices. *Public Health* 109 (1995), 369–374.
- 9 Budd SC, Gatling W, Mullee MA and Currell I. The Poole Diabetes Study: the prevalence of diagnosed diabetes mellitus in an English Community in 1996. *Diabetes Today* 1 (1998), 12–14.
- 10 Khunti K, Goyder E and Baker R. Collation and comparison of multi-practice audit: prevalence and treatment of known diabetes mellitus. *British Journal of General Practice* 49 (1999), (in press).
- 11 Amos AF, McCarty DJ and Zimmet P. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. *Diabetic Medicine* 14 (1997), S7–S15.
- 12 Gatling W, Budd S, Walters D, Mullee MA, Goddard JR and Hill RD. Evidence of an increasing prevalence of diagnosed diabetes mellitus in the Poole area from 1983 to 1996. *Diabetic Medicine* 15 (1998), 1015–1021.
- 13 Meltzer H, Gill B, Petticrew M and Hinds K. *OPCS Surveys of Psychiatric Morbidity in Great Britain, Report 1, The prevalence of psychiatric morbidity among adults living in private households*. HMSO (London: 1995).
- 14 Meltzer H, Gill B, Petticrew M and Hinds K. *OPCS Surveys of Psychiatric Morbidity in Great Britain, Report 2, Physical complaints, service use and treatment of adults with psychiatric disorders*. HMSO (London: 1995).
- 15 Rix S, Paykel ES, Lelliott P, Tylee A, Freeling P, Gask L and Hart D. Impact of a national campaign on GP education: an evaluation of the Defeat Depression Campaign. *British Journal of General Practice* 49 (1999), 99–102.
- 16 Britten N. Psychiatry, stigma and resistance. *British Medical Journal* 317 (1998), 763–764.
- 17 Prescott-Clarke P and Primatesta P. *Health Survey for England 1996*. The Stationery Office (London: 1998).
- 18 Colhoun H and Prescott-Clarke P. *Health Survey for England 1994*. The Stationery Office (London: 1996).
- 19 Department of Health. *Information for Health. An Information Strategy for the Modern NHS 1998–2005*. DH (London: 1998).