

Recent changes in the prevalence of diseases presenting for health care

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ABSTRACT

Background

Practice-based morbidity surveys inform on the prevalence of diseases presenting for health care. The last major survey in England and Wales was conducted in 1991.

Aim

To reveal changes in disease prevalence between 1991 and 2001.

Design of study

Population-based analysis of persons presenting to GPs. Annual prevalence of diseases reported in the Weekly Returns Service (WRS) of the Royal College of General Practitioners in 2001 was compared with prevalence reported in *Morbidity Statistics from General Practice, Fourth National Study (MSGP4)*.⁴

Setting

Thirty-eight general practices contributing to the WRS, monitoring a population of 326 000 in 2001.

Method

Prevalence was determined from Read codes for morbidity entered in the respective survey years. Diseases and disease groups were defined from Read codes mapping to the chapters, major sub-groups and 3-digit codes of the International Classification of Disease version 9 (ICD9). Age-standardised prevalence rates per 10 000 registered persons and 99% confidence intervals (CIs) were calculated using the national census population for 2001 as the standard. Survey differences in prevalence were identified from non-overlapping CIs.

Results

There was a general reduction in the prevalence of disease caused by infection and an increase of degenerative disorders. The prevalence of mental disorders, skin disease and musculoskeletal disorders showed little change. Particular increases were noted for other malignant and benign neoplasms of the skin, hypothyroidism and diabetes. There were marked reductions for disorders of the conjunctiva, ear infections, acute myocardial infarction and heart failure, respiratory infections and injuries.

Conclusions

The role of the GP continues to change. These results confirm the importance of the management of chronic diseases as the dominant (though not the sole) role of the GP. The results demonstrate the use of the WRS as a source of data on disease prevalence.

Keywords

medical records systems, computerised; morbidity; population characteristics; prevalence of disease.

INTRODUCTION

National morbidity surveys based on data capture in general practice in England and Wales were conducted in 1956, 1971–1972, 1981–1982 and 1991–1992.^{1–4} The latter years were chosen to exploit the link with national decennial censuses. The primary purpose of these surveys was to describe the prevalence of diseases presenting to health systems and seek evidence for health inequalities.

Practice-based morbidity surveys disclose a different type of information than population-based surveys, mainly because they have the added input of GP interpretation. They are particularly valuable when considering the deployment of resources within a health service. For some diseases, persons do not necessarily present to national health services, and for these, data from population-based surveys are needed. For diseases that require drug treatment or other forms of medical intervention (even if only for certification), the interface with general practice provides a cost-effective opportunity to capture salient morbidity data.

In the presentation of data from primary care, three statistics are available: persons consulting; new episodes of illness; and total consultations,⁵ usually expressed as rates based on age- and sex-specific populations in a defined time period. This report is based on persons consulting within a 12-month period (annual prevalence) with specific conditions or groups of conditions. We aim to describe the prevalence of disease currently presenting in general practice and compare it with equivalent data

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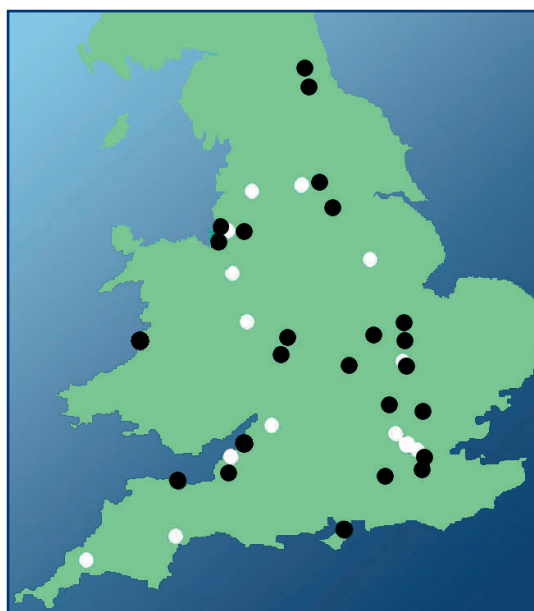
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Figure 1. Weekly Returns Service (WRS) practices included in the study. Black indicates that the practice also provided data for the Morbidity Statistics from General Practice, Fourth National Study (MSGP4).⁴



obtained in the Morbidity Statistics from General Practice, Fourth National Study (MSGP4)⁴ in 1991.

METHOD

This report is based on material gathered in the Weekly Returns Service (WRS) of the Royal College of General Practitioners.⁶ Over recent years, data capture from this network of practices has been fully automated. The morbidity problems reported at each consultation are recorded on electronic patient medical records as diagnostic Read codes (commencing with an upper-case alphabetic character), which can be mapped to the International Classification of Disease version 9 (ICD9) for analysis.⁷ The electronic medical records were interrogated to provide counts of the registered population and of persons consulting with diseases grouped by Read codes for 2001. The precise 52-week period (1 January 2001 to 29 December 2001) was chosen to facilitate comparison with data collected on a weekly basis as part of the routine

operation of the WRS.⁶ These data were used to estimate annual prevalence. Practice populations were defined from a computerised record of registered persons in defined sex and age groups (<1, 1–4, 5–14, 15–24, 25–44, 45–64, 65–74, ≥75 years) as agreed with the respective Family Health Service Authorities (now the Primary Care Trusts).

Persons reporting morbidity (evidenced by one or more entries in individual Read codes or group of Read codes) were counted in the same age groups. Age was determined at the middle point of the study year. Mostly, these data have been collected from practices using 5-byte versions of the Read code, but a small number came from 4-byte-version users. For comparison purposes we have used the published prevalence data from the MSGP4 (outlined in Tables 19, 20 and 21 of the report⁴), by age groups (0–4, 5–15, 16–24, 25–44, 45–64, 65–74, 75–84 and ≥85 years).⁴ For both data sets, the sex-specific, age-standardised (to the national census population for England and Wales 2001) prevalence rates (SPRs) and the 99% confidence intervals (CIs) were calculated. The CIs indicate the precision of the sample estimates of the overall population prevalence rates: these are generally small because of the very large populations. Furthermore, by the nature of this study, a large number of comparisons of rates are made, adding to the difficulties of statistical interpretation. Hence, it was deemed to be more informative to express the differences between rates as percentages of the MSGP4 rates, rather than to present CI values.

RESULTS

The 38 practices included in the study are indicated on the map in Figure 1. Of these, 24 also provided data for MSGP4. The surveyed population was similar in its age and sex distribution to that reported in the Census for England and Wales in 2001 (Table 1).

ICD9 chapter-based SPRs (excluding chapters XI and XVI) are compared with MSGP4 equivalents in Table 2. Percentage differences based on MSGP4 SPRs are given where 99% CIs do not overlap. Increased SPRs of clinical importance were found in: neoplasms; endocrine disorders; mental

Table 1. Surveyed population: per cent distribution by age and sex compared with census.^a

	Total	Age (years)							
		<1	1–4	5–14	15–24	25–44	45–64	65–74	≥75
Male (n)	161 211	1937	8083	21 664	20 117	50 671	39 583	11 665	7491
WRS (%)	49.5	0.6	2.5	6.6	6.2	15.6	12.1	3.6	2.3
Census (%)	48.7	0.6	2.5	6.6	6.1	14.4	11.8	3.9	2.8
Female (n)	164 639	1861	7577	20 652	20 010	49 419	39 131	12 969	13 020
WRS (%)	50.5	0.6	2.3	6.3	6.1	15.2	12.0	4.0	4.0
Census (%)	51.3	0.6	2.4	6.3	6.0	14.8	12.0	4.5	4.8
Total (n)	325 850	3798	15 660	42 316	40 127	100 090	78 714	24 634	20 511
WRS (%)	100	1.2	4.8	13.0	12.3	30.7	24.2	7.6	6.3
Census (%)	100	1.1	4.8	12.9	12.2	29.1	23.8	8.4	7.6

WRS = Weekly Returns Service. ^aNational Census for England and Wales, 2001.

How this fits in

National general practice-based morbidity surveys have been undertaken at approximately 10-year intervals since 1956, the last one was in 1991/1992. The estimation of disease prevalence is a main purpose of such surveys. Disease prevalence is updated to 2001 and differences from 1991 examined.

disorders (males only); circulatory diseases; and diseases of the genitourinary system (males only). Decreased SPRs were found in: infectious diseases; nervous system disorders; respiratory diseases; and injury and poisoning. For blood disorders, SPRs increased in males and decreased in females. SPRs in remaining chapters were similar.

The material is further explored in Tables 3–6, using SPRs for males and females in ICD9 chapters, major subgroups and selected 3-digit categories.

Data for conditions that are a subset of those given in the row above are indented in the tables. The full set of data for 2001 are published as supplementary information on the Journal website (Supplementary Table 1 gives age-standardised person consulting rates separately for all patients, males and females by ICD9 disease group, and Supplementary Table 2 gives equivalent data by ICD9 3-digit code).

Breakdown of main findings by ICD9 chapter

Chapter I, Infectious and parasitic diseases. See Table 3. There were large reductions in both males and females presenting with a wide range of conditions.

Chapter II, Neoplasms. Malignant melanoma of the skin is comparatively rare, and prevalence was unchanged, but SPRs for other malignant skin conditions increased. Prostate and breast cancer were, respectively, the male and female malignant conditions with the highest prevalence, and both increased. The age-standardised prevalence of prostate cancer exceeded that for cancer of trachea, bronchus and lung (9 per 10 000 males, data not presented). There were modest increases in the prevalence of benign neoplasms generally, and of benign skin neoplasms by 70%.

Chapter III, Endocrine nutritional and metabolic disorders. There were considerable increases in the prevalence of hypothyroidism and of diabetes: the prevalence of gout did not change. Fewer patients consulted because of obesity.

Chapter IV, Diseases of blood forming organs. Prevalence in males was higher than that in MSGP4, while in females there was a reduction.

Chapter V, Mental disorders (Table 4). Increased SPRs were found in some of the more serious categories of mental illness (especially in males) but there were fewer persons diagnosed with less-serious neuroses. There was a particularly marked increase in reported sexual deviations among males (a category that includes impotence).

Table 2. Age standardised prevalence per 10 000 persons by ICD9 chapter: MSGP4 and WRS: percentage difference between surveys.

ICD9 chapter	ICD9 Code	Males			Females		
		MSGP4	WRS	% diff	MSGP4	WRS	% diff
I, Infectious and parasitic diseases	001–139	1095	847	-23	1596	1099	-31
II, Neoplasms	140–239	202	264	+31	296	352	+19
III, Endocrine nutritional and metabolic disorders	240–279	328	436	+33	468	537	+15
IV, Diseases of blood forming organs	280–289	56	61		148	124	-16
V, Mental disorders	290–319	518	625	+21	970	964	
VI, Diseases of the nervous system and sense organs	320–389	1534	1338	-13	1908	1663	-13
VII, Diseases of the circulatory system	390–459	929	1018	+10	1090	1186	+9
VIII, Diseases of the respiratory system	460–519	2684	2166	-19	3354	2745	-18
IX, Diseases of the digestive system	520–579	784	685	-13	992	866	-13
X, Diseases of the genitourinary system	580–629	368	446	+21	1896	1545	-19
XII, Diseases of skin, subcutaneous tissue	680–709	1259	1348	+7	1611	1672	+4
XIII, Diseases of musculoskeletal system	710–739	1355	1412	+4	1812	1899	+5
XIV, Congenital anomalies	740–759	52	38		52	39	
XV, Certain conditions of perinatal origin	760–779	12	11		11	10	
XVII, Injury and poisoning	800–999	1349	969	-28	1435	980	-32

% diff = percentage difference where confidence intervals do not overlap. ICD9 = International Classification of Disease version 9. MSGP4 = Morbidity Statistics from General Practice, Fourth National Study. SPR = sex-specific, age-standardised prevalence rates. WRS = Weekly Returns Service.

Table 3. Age-standardised prevalence per 10 000 by ICD9 chapter I–III and major disease group; percentage difference of WRS relative to MSGP4.

ICD9 chapter and morbidity	ICD9 Code	Males		Females	
		SPR	% diff	SPR	% diff
Chapter I					
Infectious intestinal disease	001–009	200	-33	222	-48
Viral diseases with exanthem	050–057	120	-35	157	-39
Mycoses	110–118	248	-22	408	-35
Chapter II					
Malignant melanoma of skin	172	3		3	
Other malignant neoplasms of skin	173	22	+175	20	+122
Malignant prostate (male) breast (female)	185/174	36	+112	40	+25
All benign neoplasms	210–229	129	+40	206	+34
Benign neoplasms of skin	216	95	+70	162	+71
Chapter III					
Hypothyroidism	244	24	+85	135	+48
Diabetes	250	214	+63	173	+48
Gout	274	73		17	
Obesity	278	26	-35	62	-52

See Table 2 for explanatory footnotes.

Table 4. Age-standardised prevalence per 10 000 by ICD9 chapters V–VI and major disease group; percentage difference of WRS relative to MSGP4.

Morbidity	ICD9 Code	Males		Females	
		SPR	% diff	SPR	% diff
Chapter V					
Organic psychotic conditions	290–294	22		38	
Psychoses (other)	295–299	70	+23	119	+16
Affective psychoses	296	50	+32	102	+21
Neurotic personality and other mental disorders	300–316	393	-14	614	-29
Neurotic disorders	300	177	-14	427	-9
Sexual deviations and disorders	302	86	+258	8	
Depressive disorder NEC	311	78	+22	177	+10
Chapter VI					
Parkinson's disease	332	15		12	
Multiple sclerosis	340	5		12	
Epilepsy	345	37		30	
Disorders of the eye and adnexa	360–379	489	-11	660	-10
Cataract	366	33		58	+23
Disorders of conjunctiva	372	284	-17	374	-19
Diseases of the ear and mastoid process	380–389	771	-20	845	-18
Disorders of external ear	380	360	-18	338	-18
Nonsuppurative otitis media and eustachian tube disorders	381	172	-43	206	-40
Suppurative and unspecified otitis media	382	150		153	

NEC = not elsewhere classified. See Table 2 for all other explanatory footnotes.

Table 5. Age-standardised prevalence per 10 000 by ICD9 chapter VII, VIII, IX and X and major disease group; percentage difference of WRS relative to MSGP4.

ICD9 chapter and morbidity	ICD9 Code	Males		Females	
		SPR	% diff	SPR	% diff
Chapter VII					
Hypertensive disease	401–405	528	+34	712	+39
Ischaemic heart disease	410–414	233		149	
Acute myocardial infarction	410	33	-24	17	
Other forms of heart disease	420–429	135		126	-22
Heart failure	428	58	-37	59	-48
Cerebrovascular disease	430–438	68		67	
Diseases of arteries arterioles and capillaries	440–448	47	-29	46	
Varicose veins of lower extremities	454	50	-20	92	-26
Haemorrhoids	455	70	-24	86	-25
Chapter VIII					
Respiratory infections — acute	460–466	1569	-22	2149	-21
Chronic obstructive pulmonary disease	490–496	457	-18	488	-7
Asthma	493	343	-18	380	-9
Chapter IX					
Diseases of oesophagus stomach duodenum	530–537	250	-30	280	-27
Hernia of abdominal cavity	550–553	95		53	
Chapter X					
Urinary systems disease other	590–599	161		590	-7
Male genital organ diseases	600–608	253	+28		
Orchitis and epididymitis	604	39	+30		
Other disorders of breast	610–611	17		164	-20
Inflammatory disease of female pelvic organs	614–616			104	-48
Genital prolapse	618			40	

See Table 2 for explanatory footnotes.

Chapter VI, Diseases of the nervous system and sense organs. Modest reductions in the chapter-based rates (Table 2) were found in both sexes. SPRs for Parkinson's disease, multiple sclerosis and epilepsy did not differ from MSGP4 equivalents. The relativity between the sexes was similar to that reported in MSGP4 (similar male and female rates of Parkinson's disease and epilepsy but a two-fold female over male excess for multiple sclerosis). Although rates in nervous-system diseases changed little, there were reductions in sense-organ disorders. In primary care, 'eye disorders' includes a large contribution from acute conjunctival conditions, where SPRs decreased by 18%. There was a 23% increase in the prevalence of cataracts in females, and 14% in males. The prevalence of otitis externa and of non-suppurative otitis media fell, but the prevalence of suppurative otitis media remained the same.

Chapter VII, Diseases of the circulatory system (Table 5). Increased chapter-based SPRs were reported in both sexes especially because of the increase in hypertensive disease. Age-specific data (not presented) indicate that the increase is mostly in the elderly. The prevalence of ischaemic heart disease was similar in both surveys, though the prevalence of acute myocardial infarction fell by 24%. For conditions classified to 'other forms of heart disease', male rates were similar but female rates decreased slightly. For heart failure (a subgroup of this category) there were substantial reductions in both sexes. Rates for cerebrovascular disease were similar: modest reductions were evident in arterial diseases, varicose veins and haemorrhoids.

Chapter VIII, Diseases of the respiratory system. Substantial and similar reductions in both sexes were widely distributed across upper and lower respiratory illnesses including COPD (80% of persons in this ICD9 subgroup are diagnosed with asthma).

Chapter IX, Diseases of the digestive system. Reduced prevalence was particularly evident in diseases of the oesophagus, stomach, and duodenum; rates for hernia were unchanged.

Chapter X, Diseases of the genitourinary system. Rates in males increased and in females decreased. 'Other disease of the urinary system' mainly comprises urinary tract infections and rates were similar in both surveys. There was an increase in male genital-organ diseases, but SPRs for female pelvic inflammatory disease decreased.

Chapter XII, Diseases of skin, subcutaneous tissue (Table 6). Small increases in SPR occurred in both sexes. The prevalence of skin and subcutaneous tissue infections increased by roughly 25%. The prevalence of 'other inflammatory skin and subcutaneous tissue conditions' (dominated by eczema and contact dermatitis) and of diseases of sebaceous glands (mainly acne) decreased slightly.

Chapter XIII, Diseases of musculoskeletal system and connective tissues. Prevalence scarcely changed between the surveys: female rates were higher than male. SPRs for rheumatoid arthritis decreased slightly but for other forms of rheumatism (includes bursitis, tendonitis, polymyalgia rheumatica) rates increased.

Chapter XVI, Symptoms, signs and ill-defined conditions. There were only small differences between the surveys in those 3 digit ICD categories in which the standardised prevalence rate exceeded 100.

Chapter XVII, Injuries and poisoning. Substantial reductions in SPR were evident in both sexes particularly for minor injuries.

DISCUSSION

Summary of main findings

The changes in disease prevalence between the two surveys, conducted respectively in 1991 and 2001, can be summarised as a general reduction in infectious diseases and accidents; increases in some degenerative disorders; and little change in the prevalence of mental disorders, diseases of the skin and diseases of the musculoskeletal system.

Methodological issues

This study compares prevalence at two points, 10 years apart — and thus does not describe trends. The WRS provides incidence data by week and these are available for many years, thus they do truly describe trends. This report is the first in which the WRS data collection system has been exploited to provide prevalence data. We plan to maintain this additional feature over future years, thereby fulfilling one of the most important objectives of national morbidity surveys.

Annual prevalence depends on a combination of incidence and longevity. Patients with malignant disease are living longer than they did 10 years ago, and are available for inclusion in annual prevalence over a longer period: the converse applies for conditions in which life expectancy decreases (a rare event). The incidence of myocardial infarction has fallen sharply in recent years but the prevalence of ischaemic heart disease has scarcely changed

Table 6. Age-standardised prevalence per 10 000 by ICD9 chapter XII, XIII, XVI, and XVII and major disease group; percentage difference of WRS relative to MSGP4.

		Males		Females	
ICD9 chapter and morbidity	ICD9 Code	SPR	% diff	SPR	% diff
Chapter XII					
Skin and subcutaneous tissue infections	680–686	392	+22	463	
Skin and subcutaneous tissue	690–698	588	-6	763	+26
other inflammatory conditions					
Psoriasis and similar disorders	696	60		70	
Diseases of the sebaceous glands	706	142	-20	179	
Urticaria	708	48		82	-18
Chapter XIII					
Arthropathies	710–719	497		752	
Rheumatoid arthritis	714	20		48	+14
Dorsopathies	720–724	492	-7	668	
Rheumatism excluding back	725–729	544	+20	711	+26
Chapter XVI					
Symptoms involving skin and	782	178	+12	264	
other integument tissue					
Symptoms involving head and neck	784	126		194	-11
Symptoms involving respiratory and chest	786	300	-11	331	-15
Symptoms involving abdomen pelvis	789	153	-17	282	-17
Chapter XVII					
Sprains, strains, etc	840–848	367	-33	382	-31
Superficial injury	910–919	71	-51	78	-52
Contusion with intact skin	920–924	96	-17	103	-22

See Table 2 for explanatory footnotes.

because of improvements in survival prospects and because sufferers are managed more actively. Improved diagnostic methods and earlier diagnosis may lead to increased reported prevalence and are likely to have contributed to the changes reported for prostate cancer, hypothyroidism and diabetes. However, this seems an inadequate explanation for the large difference in diabetes prevalence that we report. Simple comparisons of age-standardised data sometimes conceal important differences available in age band-specific data (for example changes in the age-specific prevalence). The full set of age-specific data from this study will be made available on the Unit website (<http://www.rcgp.org.uk/bru/index.asp>). The prevalence of active disease defined by the need to consult within a 12-month period is particularly useful when considering issues related to the allocation of resources. Many practices maintain lists of persons with specific diseases, which commonly can only be used to estimate cumulative prevalence. For some conditions, there is little difference between the frequency of annual and cumulative prevalence, but for others (for example asthma), patients may recover completely or go into remission and remain symptom free for many years.

This study is based on persons presenting in primary care, so differences in access to medical care facilities must be considered. By 2001 patients could access

NHS Direct,⁸ but there were no alternative services for conditions requiring prescribed medication, sickness certification, or referral to secondary care. Walk-in centres have been introduced more recently. Greater use of accident and emergency departments may account for the reduced prevalence of injuries, although minor accidents may be less frequent.

Recording in electronic medical records according to the discipline of the WRS ensures continuous updating of the patient record in a manner conducive to its use as an information system. Bias in the application of diagnoses by GPs is not likely to have changed, as many of the GPs (and patients) contributed to both surveys. By 2001, most participating GPs were entering the morbidity codes directly onto electronic medical records, which may have led to increased reporting particularly of minor conditions (although that is not suggested by the findings). Recording procedures were validated in MSGP4⁴ and the use of electronic medical records has been validated elsewhere:⁹ the quality of information from the WRS has been validated by reference to virological data¹⁰ and in comparison with hospital episode data.¹¹

The WRS data were standardised to census populations by age and sex but not by social class or ethnic origin, which were examined in MSGP4. Since many of the practices participated in both surveys, the respective populations are likely to be demographically similar. The changes reported are likely to be applicable to the total population given the size of the samples, the representativeness by age of the populations surveyed, the long periods of observation (12 months each survey), and the consistency of the findings in relation to the routine weekly analyses reported in the WRS. The inclusion of socioeconomic data in the WRS as in MSGP4 would enhance the service. However, the additional costs and the ethical requirements for individual patient consent are unrealistic in a service primarily concerned with continuing disease surveillance. Patient-specific data with linkage between events are needed for more intensive studies.^{12,13}

Comparison with existing literature

In some cases these data confirm trends already published (such as decreasing trends in asthma and respiratory infections, and the increasing prevalence of diabetes).¹⁴⁻¹⁷ They also identify new trends (such as increasing hypothyroidism) and they provide reassurance on issues such as the relative stability of the prevalence of the majority of mental disorders. The increased prevalence of serious mental disorders reflects increased care in the community for persons with these conditions.

In recent months, attention has been focused on increased incidence of sexually transmitted diseases.¹⁸

In this study, the prevalence of male genital-organ disease (mostly not sexually transmitted) was higher in 2001 than in MSGP4, whereas the prevalence of female pelvic-inflammatory disease was lower. It should be stressed that both the WRS and MSGP4 surveys are based on secure population denominators and are not dependent on secondary referral. A recent report to the Royal College of Physicians referred to increasing problems of diseases with an allergic basis, notably asthma and eczema.¹⁹ While there may be under-recognition by GPs of the role of allergy in the aetiology of disease, the data reported here challenge these claims. Furthermore, being based on healthcare utilisation in primary care, the data inform on population perceptions of clinical significance and their need for medical services.

Implications for general practice

This study suggests that diabetes, hypothyroidism and hypertension should prompt concern. There is accumulating evidence of increased prevalence of type 2 diabetes, and this study has disclosed an increase exceeding 50% in the last 10 years. If this is indeed a life-style problem there is an urgent need to reverse the trend.^{20,21} Increasing publicity about obesity is to be welcomed, but these data show that fewer patients consulted specifically about this problem in 2001 than in 1991. Over the 10-year interval between these surveys, there has been an increase of a third in the numbers diagnosed with hypertension; an increase with considerable financial repercussions given the increased therapeutic options and much extended use of statins for those at increased cardiovascular risk.

Reductions in the prevalence of infectious diseases are interesting especially because they are found across such a wide range of diagnoses. We have reported elsewhere on reducing incidence of asthma and respiratory infections (which are mainly caused by viruses), and argued that this has precipitated reductions in antibiotic prescribing rather than been caused by them.^{14,15} Changes in social demography influence the transmission and incidence of disease as has been shown using WRS data for chickenpox.²² The prevalence of skin infections and urinary tract disorders, which are usually bacterial infections, did not reduce to any clinically-significant extent over the same period. Whatever the reason, the reductions are welcome, but 'what comes down may also go up' — emphasising the importance of continued surveillance.

The content of general practice has changed over the last 10 years. Fewer people present with infections and injuries; cancer survival has increased (involving the GP in continuing care); diabetes, hypothyroidism and hypertension have increased; ischaemic heart disease is managed more aggressively. The prevalence of mental disorders has

remained constant (excepting the increased numbers of patients with major psychoses now managed in the community). The prevalence of skin disorders and musculoskeletal conditions remains about the same. These results demonstrate the dynamic nature of medical care and emphasise the need for a matching dynamic programme of continuing medical education in order to keep abreast of changes. They also provide a rational basis for resource allocation.

Supplementary information

Additional information accompanies this article at <http://www.rcgp.org.uk/journal/index.asp>

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Ethics committee

The WRS data for this study were obtained from the practices as numerical summaries and not as person-specific data, so ethical approval was not required. The protocol for MSGP4 was approved by the BMA Ethics Committee

Competing interests

None

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