Factors other than ethnic group—for example, sex—could account for some of the differences that we observed.

A higher proportion of applicants to medical schools than in the population overall are from ethnic minority groups.² Medical schools may therefore inadvertently be trying to restrict the overall numbers of students from ethnic minority groups to reflect population distributions in the United Kingdom. This may explain why white students with lower A level scores (25 or less) seem to have a greater chance of being accepted than their colleagues from ethnic minority groups with similar scores. There did not seem to be any selection bias in favour of white candidates among applicants with scores of 30-26.

The process of selecting students for undergraduate

medical courses has long been a problem for those having to select. Admission policies are not standard or defined so the policies of individual medical schools vary greatly.³ Our data suggest that some medical schools could be accused of practising discriminatory admissions policies.

AE and DP were commissioned by the Medical Practitioners Union, London SE1 1UN, to carry out this study.

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Incidence of melanoma in four English counties, 1989-92

John N Newton, Julia Redburn

Unit of Health-Care Epidemiology, Department of Public Health and Primary Care, University of Oxford OX3 7LF
John N Newton, consultant epidemiologist

Oxford Cancer Intelligence Unit, Anglia and Oxford Regional Health Authority, Oxford OX3 7LF
Julia Redburn, deputy director

Correspondence to: Julia Redburn.

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The age standardised incidence of malignant melanoma in England seems to have been increasing in both sexes by more than 5% a year from 1979 to 1988.¹ More recent data from the Scottish cancer registry suggest that incidence in women has not increased there since 1988.² Routine mortality data for England and Wales show no increase in the death rate from melanoma in women from 1989 to 1992, whereas for men it continued to rise. In view of the lack of national incidence data after 1988, we analysed registrations for malignant melanoma in a single regional registry from 1981 to 1992.

Methods and results

The Oxford Cancer Intelligence Unit collects and analyses information on a population of approximately 2.5 million people in Oxfordshire, Berkshire, Buckinghamshire, and Northamptonshire. The histological verification rate for melanomas is high at 96%. The completeness of melanoma registration was validated by using a variety of methods. Annual registration rates for malignant melanoma of the skin (*International Classification of Diseases*, ninth revision

(ICD-9) code 172) for men and women were directly age standardised with the World Health Organisation's European standard population; 95% confidence intervals were calculated by a standard method.³ Similar rates were calculated and analysed separately for carcinoma in situ of the skin (ICD-9 232) that were histologically confirmed as malignant melanoma.

In the period 1981-92, 2068 melanomas and 296 melanomas in situ were registered. The figure shows that for men annual registration rates for melanoma (ICD-9 172 only) increased over this period, with an additional peak in 1988. In women, however, the increase from 1981 to 1988 was followed by a fall in the registration rate from 11.41 (95% confidence interval 9.5 to 13.3) per 100 000 in 1988 to 7.53 (6.0 to 9.0) in 1992. The proportion of melanomas that were registered as in situ increased from 1985 to 1992 ($P=0.09$, χ^2 test for linear trend, both sexes combined). This increase was more obvious in women than men. When melanomas in situ were analysed together with other melanomas, the annual registration rates for women still showed a decline after 1989 that was not seen in men.

Comment

The year on year increase in the incidence of melanoma up to 1988 has not continued beyond that year in women, at least in the area covered by the Oxford Cancer Intelligence Unit. This reversal of trend is unlikely to be artefactual as a change in ascertainment levels over time would not produce such a trend only in women.

Exposure to the ultraviolet radiation in sunlight is the most important known risk factor for melanoma.⁴ Healthy attitudes to sun exposure are becoming more common, particularly among women and those in higher social classes (G B Hastings and D R Eadie, unpublished data). Melanoma registration rates may be falling in women because they have been more receptive than men to health promotion messages. The increasing proportion of in situ melanomas suggests that both sexes are presenting earlier with these cancers.

There is evidence that public health campaigns give rise to a short term increase in the apparent incidence of melanoma.⁵ The rise in incidence before 1988 in both sexes was probably partly the result of campaigns that took place mainly in 1987. A preliminary examination of registrations for 1993 suggests that the decline in melanoma in women from 1988 to 1992 is about to be partially reversed, presumably as a result of greater public and professional awareness of skin cancers because of the current Health of the Nation initiative. Fortunately, the additional cancers registered in 1993 seem to include many in situ and thin malignant

Annual registration rate (age standardised) for melanoma of the skin within the Oxford Cancer Registry, 1981-92

melanomas; both of these tumour types have a relatively good prognosis.

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Skin cancer: how accurate are local data?

Clive Richards, Hilary Richards, Derek Pheby

Department of Public Health Medicine, Bristol and District Health Authority, Bristol BS2 8EE
Clive Richards, senior registrar

Clevedon, Avon BS21 7BX
Hilary Richards, consultant in medical information technology

South Western Regional Cancer Registry, Bristol BS8 2PR
Derek Pheby, director

Correspondence to:
Dr C Richards, Nottingham Health, Nottingham NG3 5AF.

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Baseline information on the incidence of skin cancer for monitoring targets set in the *Health of the Nation* is based on data about malignant melanoma obtained from regional cancer registries.¹ Levels of ascertainment of cancer by registries are variable.² We undertook a retrospective survey to review the registration of skin cancer over 10 years (1984 to 1993). The South Western Regional Cancer Registry's data on skin cancer in residents of the Bristol and District Health Authority were compared with data obtained directly from the histopathology records of the hospital laboratories serving the district.

Subjects, methods, and results

The four NHS hospitals serving the Bristol and District Health Authority area have computerised histopathology systems, which were introduced around 1987. A printout of all cases of skin cancer was obtained from each hospital with a manual search for the years before computerisation. Two private hospitals were also asked to provide data. These were linked with patient identification details to provide the minimum dataset required for registration. The data were then matched against previous entries in the cancer registry.

A total of 365 additional cases of skin cancer treated at local hospitals were identified. These included 177 new registrations of malignant melanomas of the skin (code 172 of the *International Classification of Diseases*, ninth revision (ICD-9)); 102 related to local residents, giving an increase of 13% on the 790 cases already registered. Revised age standardised incidence rates were calculated for each of the years 1984 to 1993 (table). The private sector generated 23 of the 102

unregistered cases (23%). The remaining 188 additional registrations included diagnoses other than malignant melanoma of the skin (ICD-9 172) such as carcinoma in situ and lentigo maligna (ICD-9 232), dysplastic naevus or melanoma precursor (ICD-9 238), melanoma of the eye (ICD-9 190), melanoma of the male genitalia (ICD-9 187), and melanoma of the female genitalia (ICD-9 184).

Comment

Accurate ascertainment is a problem for all cancer registries. Computers in pathology departments can be useful sources of data when compiling a cancer registry, and their use forms one of the recommendations of the *Review of the National Cancer Registration System* (Alberman report).³ The observed shortfall in ascertainment for the diagnosis of malignant melanoma over recent years could be explained by a lag between diagnosis and registration or by increased use of outpatient treatment, thus reducing the value of inpatient diagnoses as a major data source for cancer registries. Other sources of error include the possibility of clinicians excising lesions without asking for a histopathological report and the variability of diagnosis between individual pathologists. The use of private care affecting cancer registration was also a concern of the Alberman committee.

The relatively low annual incidence of skin cancer makes monitoring of trends difficult even after an accurate register has been established. Bristol and District Health Authority with 830 000 residents is the second largest health district in England and Wales,⁴ yet for melanoma the 95% confidence interval of the standardised rate ratio⁵ included unity for the change in incidence between 1984 and 1993 (1.27 (0.93 to 1.75)). It is therefore not possible to show a statistically valid increase over this 10 year period. The requirement of the *Health of the Nation* to monitor the change in annual incidence in each district health authority will need to be modified. Monitoring should be conducted in much larger populations (such as the new NHS regions) to show statistically robust trends.

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Cancer registration for melanoma (ICD-9 172) in Bristol and District Health Authority, 1984-93

Year	No of cases registered		Age standardised registration rate*		
	Before ascertainment	No (%) of cases added	Before ascertainment (95% confidence interval)	After ascertainment (95% confidence interval)	3 year rolling average after ascertainment
1984	68	0	8.35 (6.32 to 10.37)	8.35 (6.32 to 10.37)	
1985	78	1 (1)	8.87 (6.85 to 10.89)	8.98 (6.95 to 11.01)	
1986	67	8 (12)	7.84 (5.92 to 9.76)	8.80 (6.76 to 10.84)	8.71
1987	93	5 (5)	10.56 (8.35 to 12.96)	11.23 (8.95 to 13.53)	9.67
1988	94	8 (9)	10.69 (8.46 to 12.92)	11.56 (9.24 to 13.87)	10.53
1989	77	7 (9)	8.87 (6.83 to 10.90)	9.50 (7.40 to 11.20)	10.76
1990	82	20 (24)	6.77 (5.03 to 8.50)	9.16 (7.12 to 11.20)	10.07
1991	80	11 (14)	8.74 (6.76 to 10.72)	9.92 (7.81 to 12.03)	9.53
1992	77	19 (25)	8.39 (6.45 to 10.34)	10.57 (8.37 to 12.76)	9.88
1993	74	23 (31)	8.04 (6.15 to 9.93)	10.64 (8.45 to 12.83)	10.38
Total	790	102 (13)			

*Rate per 100 000 population standardised to the European standard population.¹

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