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

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1 Office of Population Censuses and Surveys. *Cancer statistics: registrations of cancer diagnosed in 1988, England and Wales*. London: HMSO, 1994.

- 2 Sharp L, Black RJ, Harkness EF, Finlayson AR, Muir CS. *Cancer registration statistics Scotland, 1981-1990*. Edinburgh: Common Services Agency, 1993.
- 3 Armitage P, Berry G. *Statistical methods in medical research*. Oxford: Blackwell Scientific, 1987.
- 4 International Agency for Research on Cancer. *Solar and ultraviolet radiation*. Lyon: IARC, 1992. (IARC monographs on the evaluation of carcinogenic risks to humans, vol 55.)
- 5 Graham-Brown RA, Osborne JE, London SP, Fletcher A, Shaw D, Williams B, et al. The initial effects on workload and outcome of a public education campaign on early diagnosis and treatment of malignant melanoma in Leicestershire. *Br J Dermatol* 1990;122:53-9.

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Skin cancer: how accurate are local data?

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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

- 1 Secretary of State for Health. *Health of the nation: specification of national indicators*. London: HMSO, 1992.
- 2 Benn RT, Leck I, Nwene UP. Estimation of completeness of cancer registration. *Int J Epidemiol* 1982;11:362-7.
- 3 Office of Population Censuses and Surveys. *Review of the national cancer registration system: Report of the working group of the Registrar General's medical advisory committee*. London: HMSO, 1990.
- 4 Department of Health. *Public health common data set 1993*. Guildford: Institute of Public Health, University of Surrey, 1993.
- 5 Boyle P, Parkin DM. Statistical methods for registries. In: Jensen OM, Parkin DM, MacLennan R, Muir CS, Skeet RG, eds. *Cancer registration principles and methods*. Lyons: International Agency for Research on Cancer, 1991:126-58.

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