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Cancer Incidence Registration and Trends in the Canton of Vaud, Switzerland

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THE VAUD Cancer Registry collects data concerning incidence, mortality and survival of malignant neoplasms in the resident population of the Canton, whose population in 1980 was about 530 000. It began operation in January 1972, and the registration scheme was progressively implemented during the first few years after its inception. Thus, reliable data have been available since the late 1970s, and have been published from volume IV of *Cancer Incidence in Five Continents* onwards [1–2].

Information routinely collected includes sociodemographic characteristics, primary site and histological type of the tumour according to the International Classification of Diseases (ICD) for Oncology [3] and time of diagnostic confirmation. Passive and active follow-up are undertaken, and each subsequent item of information is used to complete the individual record. Thus, this is one of the few European cancer registration schemes that produces population-based survival data [4]. Information from death certificates is routinely integrated in the data file: cases known only through death certificate contribute to less than 5% of the average number of new cases registered per year. Overall, histological confirmation exceeds 90%.

Data for the period 1984–1988 are now available and will be published, as for previous five-year calendar periods [5, 6], in a standard report (available from F.L.). Here we summarise the main findings. Furthermore, the whole data set for the decade 1979–1988 (including 27 694 registered cancers, 14 548 males and 13 146 females) has been used for analyses of trends over two five-year calendar periods (1979–1983 and 1984–1988). This updates a previous analysis based on two consecutive issues of *Cancer Incidence in Five Continents* [7].

In Fig. 1, overall age-standardised rates (to the world standard population) are presented, although they provide only summary information and may obscure heterogeneous or diverging age-specific patterns [8]. The whole pattern of age and cohort specific rates is published in the registry report.

In males, lung cancer was the commonest form of malignancy,

Table 1. Percentage rate of change of overall age-standardised (world) incidence rates from selected cancers or groups of cancers (Vaud, Switzerland, 1984–1988 vs. 1979–1983)

Site	ICD-9	Percent change in: Males	Females
Mouth or pharynx	140–9	+14.0	−14.2
Oesophagus	150	−15.0	−11.8
Stomach	151	−16.6	+ 3.5
Colon	153	− 0.2	+ 1.1
Rectum	154	−15.4	−17.5
Intestine, total	152–4	− 6.6	− 3.9
Liver	155.0	+12.1	− 9.6
Gallbladder	156	− 8.5	−19.6
Pancreas	157	− 6.2	+29.4
Larynx	161	− 4.0	− 4.9
Trachea, bronchus and lung	162	− 1.4	+48.1
Skin melanoma	172	+46.3	+42.3
Skin non-melanoma	173	+21.7	+33.4)
Breast	174	—	+ 9.2
Cervix uteri	180	—	−28.4
Corpus uteri	182	—	−14.8
Ovary	183	—	+ 0.7
Prostate	185	+ 3.5	—
Testis	186	− 0.6	—
Bladder (infiltrating)	188	+ 2.6	+22.2
Kidney, other urinary	189	+13.9	+19.9
Brain and nerve	191–2	+16.4	+36.0
Thyroid	193	−32.0	−15.5
Hodgkin's disease	201	−14.7	−17.0
Other lymphomas	200, 202	+ 5.6	− 7.5
Multiple myeloma	203	+ 4.0	+40.6
Leukaemias	204–8	− 2.4	+ 2.9
Total, all sites	140–208	+ 5.4	+ 9.4
All sites except skin non-melanoma	All − 173	+ 1.1	+ 3.6

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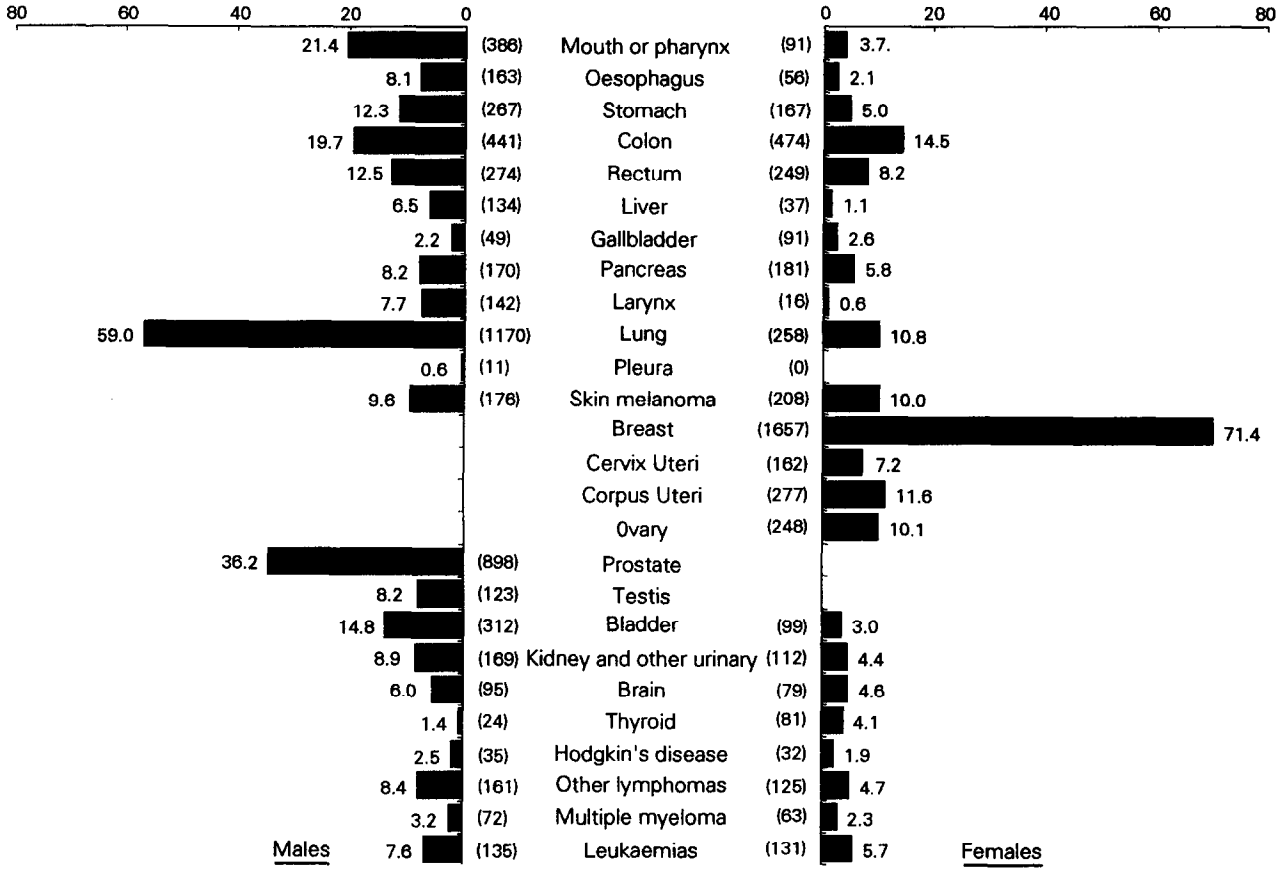

Fig. 1. Age-standardised (world) incidence rates per 100 000 from major cancer sites. Vaud, Switzerland, 1984–1988. Number of registered cases is given in parentheses.

with a rate of 59.0 per 100 000 (world standard), followed by prostate (36.2), intestines (33.2), oral cavity (21.4) and bladder (14.8). In females, breast was the leading site, with a rate of 71.4 per 100 000, followed by intestines (23.8), corpus uteri (11.6), lung (10.8) and ovaries (10.1).

Although age-standardised rates have limitations, some points are worth making. For several sites (oral cavity, oesophagus, prostate and testis in males; intestines, melanoma and non-melanoma skin cancers, thyroid and lymphomas in both sexes; and breast in females), the Vaud rates tend to be in the upper part in the range of variation between European cancer registration areas. For stomach, they were among the lowest registered in Europe for both sexes [9].

For trends over time, expressed in Table 1 as percent changes between 1984–1988 and 1979–1983, the incidence of lung and other tobacco-related sites remained stable (or slightly decreased) in males except for some increase in cancer of the oral cavity and pharynx (observed for tongue, mouth and pharynx, but not lip) (Table 2), but showed substantial increases in females (around 50%, from 7.3 to 10.8 per 100 000 for lung alone). Other upward trends were observed for skin (approaching 50% for melanoma in both sexes), female breast (increase of 9%, reaching 71.4 per 100 000), and urinary tract neoplasms. In contrast, declines were observed not only for stomach in males and cervix, but also for intestines (particularly rectum), gallbladder and endometrium. Among females, there was no further decline in stomach cancer, whose long-term fall may therefore have reached an asymptote (flattened out) in this population, thus confirming an indication that emerged from an age-period-cohort analysis of Swiss cancer mortality [10].

The absence of any consistent trends in incidence for cancers of the prostate and testis is also of interest, and represents an important indicator of the uniformly high standard of monitoring by this cancer registration scheme.

Overall total cancer incidence (excluding non-melanoma skin cancer) was stable (1% increase) in males, but increased by 4% in females, reaching values of 285.8 and 209.8 per 100 000, respectively, in 1984–1988.

From a public health perspective, the levelling of tobacco-related cancer incidence in males is somewhat reassuring, but it is certainly discouraging that most of the increases were restricted to cancer sites whose aetiology has long been defined—i.e. tobacco for lung cancer in females and acute exposure to non-ionising radiation (sunshine) for melanoma and other skin neoplasms.

Table 2. Age-standardised (world) average annual cancer incidence rates for selected subsites of oral cavity and pharynx in Vaud

		Males		Females	
Site	ICD-9	1979–1983	1984–1988	1979–1983	1984–1988
Lip	140	1.1 (23)*	0.8 (19)	0.2 (5)	0.0 (2)
Tongue	141	2.6 (44)	3.6 (64)	0.7 (18)	1.0 (26)
Mouth	143–5	4.0 (71)	5.3 (90)	1.5 (32)	0.9 (23)
Pharynx	146, 8	8.9 (153)	10.0 (178)	1.5 (32)	1.3 (30)
Nasopharynx	147	0.5 (8)	0.9 (15)	0.0 (1)	0.2 (3)

*No. of cases.

Table 3. Age-standardised (world) average annual incidence rates for multiple myeloma and brain, testis and prostate cancer in Vaud

Site/ age group	Males		Females	
	1979–1983	1984–1988	1979–1983	1984–1988
Brain				
<65	4.0 (51)*	5.3 (73)	3.1 (44)	3.9 (46)
≥65	21.0 (32)	13.6 (22)	5.0 (11)	12.7 (33)
Myeloma				
<65	1.4 (20)	1.1 (17)	0.6 (10)	1.4 (23)
≥65	25.5 (42)	30.8 (55)	15.2 (36)	13.8 (40)
Testis				
<65	8.6 (116)	8.3 (115)	—	—
≥65	3.0 (6)	5.9 (8)	—	—
Prostate				
<65	6.6 (92)	7.5 (114)	—	—
≥65	411.3 (700)	417.2 (784)		
Thyroid				
<65	1.5 (20)	1.3 (19)	4.3 (63)	3.7 (56)
≥65	10.2 (16)	3.0 (5)	11.0 (29)	7.1 (25)

*No. of cases.

A more general interest from these data lies in a better understanding of trends for selected cancers, which show apparent increases in the older age groups in other populations. Trends in separate age groups are shown in Table 3 for brain [11, 12], myeloma [13], prostate, testis [14] and thyroid [15]. The absence of major consistent trends in either males or females and younger or older age groups for these neoplasms is especially relevant to the still open issue on cancer trends in older age groups, since it shows that, even from incidence data, generalised increases are not apparent in this population which is satisfactorily covered by registration. In particular, prostate and thyroid cancers were stable and on the decrease above age 65, brain showed some increase in older females but some fall in older males and myeloma tended to rise more in older males and younger females. For testicular cancer, no change was evident under age 65 and rates in Vaud are among the highest in the world [2, 9]. It is thus tempting to speculate whether an asymptote in testicular cancer rates will be approached in other white populations in the future [14]. Similarly, it is worth noting the levelling of thyroid cancer trends in both sexes [15].

Incidence statistics from the population of the Canton of Vaud are not directly applicable to other areas. However, they are of interest to the debate on the apparent rises in incidence and mortality for the older age groups in several countries, which are discussed from time to time in terms of real increases and the need to identify causes [16, 17]. Besides the major theoretical point that any real trend usually becomes evident earlier in the younger age groups and only subsequently spreads to the elderly [18], the absence of any major systematic upward trend in a well-defined, uniformly monitored population sheds some further doubt on the generalised existence of rises in cancer incidence.

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