

Cancer Incidence Registration and Trends in the Department of Doubs, France

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THE CANCER Registry of Doubs is located in the eastern part of France. It covers a population of 478 272 (1982 census) and started functioning in 1976. Two thirds of the population lives in urban areas. Reliable data were first published in 1977 in *Cancer Incidence in Five Continents*, vol IV [1]. Information collected includes site and morphology. Histologic confirmation was obtained in 95.7% of cases. Type of treatment and recent socioeconomic data were also collected. Overall survival is calculated for major sites every 5 years. About 1630 incident cases are recorded each year with a world age standardised incidence of 351 for males and 215 for females (1983-1986) per 100 000. Figure 1 summarises the age standardised incidence rates from major cancer sites between 1983 and 1986: the world standard population has been used in all age-adjustment. The most interesting facets are the high frequency of head and neck cancers (oral cavity, pharynx, larynx) which ranks third after lung and prostate among the male population. The inclusion of non invasive tumours in bladder cancer explain its high incidence. For women, breast cancer accounts for 30% of all tumours (skin cancers excluded) and cancer of the uterus cervix is still slightly more frequent than cancer of the corpus uterus. The trend over time is shown in Table 1 for some sites. There is an

increase of all cancers excepted for cervix and brain tumours contrary to what other authors have reported [2]. In males, the incidence rates of lung and larynx cancer remain stable while the incidence of pharynx cancer is still increasing in young and old. Most interesting are the tumours in the female population. Breast cancer and acute leukaemia incidences increased, as has the incidence of lung cancer although remaining at a low level. A downward trend is observed for cancer of the cervix. If younger birth cohorts are considered, the only upward trends are those for cancer of the pharynx in males and breast cancer in females. Changes in the incidence rate of cancer of the prostate cancer must be interpreted with caution, since it seems that an increased accuracy of diagnosis is also likely to explain the incidence increase. Curiously skin melanoma has increased in males while remaining at the same level in females. Blot *et al.* [3] have described an increase of adenocarcinoma of the oesophagus in the U.S.A., this has not been seen in the Registry of Doubs probably because of the small number of cases. The percentage of multiple tumours is 5.5% in males and 2.5% in females with a relative risk of 5.36 for bronchus cancer and 8.37 for head and neck cancer. Most of the second cancers are located

Table 1. Percentage rate of change of overall age-standardised (world) incidence rates from selected cancers or groups of cancers for males and females. Doubs, France, 1979-1986

Site	Per cent change (1983-1986/1979-1982) in		
	ICD-9	Males	Females
Pharynx	146-148-149	+11	—
Larynx	161	+1	—
Lung	162	+0	+19
Breast	174	—	+8
Cervix uteri	180	—	-22
Corpus uteri	182	—	-3
Prostate	185	+12	—
Brain	191	-4	-15
Melanoma	172	+13	+0
Skin melanoma		+12	-6
Colon	153	+18	+10
Rectum	154	-12	+1
Leukaemias	204-207	+4	+26
Acute leukaemias		-2	+18
Total all sites	140-208	+4	+6
All sites except skin carcinoma	total(-173)	+3	+3

Table 2. Age-standardised (world) average annual incidence rates for multiple myeloma, brain, testis, prostate, cervix, breast and acute leukaemia cancer in Doubs, France, according to sex and age-group, 1979-1986

Site	Males		Females	
Age group	1979-1982	1983-1986	1979-1982	1983-1986
Brain				
<65	5.52 (48)	5.37 (49)	3.99 (36)	3.39 (30)
≥65	25.32 (19)	23.22 (14)	13.12 (14)	11.08 (12)
Myeloma				
<65	0.69 (5)	1.44 (13)	1.38 (12)	0.64 (6)
≥65	17.08 (14)	19.73 (17)	15.56 (19)	15.02 (22)
Testis				
<65	3.77 (36)	4.47 (42)		
≥65	1.70 (2)	3.95 (3)		
Prostate				
<65	5.25 (41)	5.62 (54)		
≥65	317.19(272)	359.19(320)		
Cervix uteri				
<65			9.91 (91)	8.23 (81)
≥65			48.58 (58)	30.84 (39)
Breast				
<65			41.09(368)	47.37(450)
≥65			219.76(273)	199.05(265)
Acute leukaemias				
<65	3.80 (41)	3.11 (27)	2.15 (18)	2.59 (20)
≥65	14.16 (11)	22.06 (19)	8.14 (9)	9.02 (15)

Number of cases is given in parentheses.

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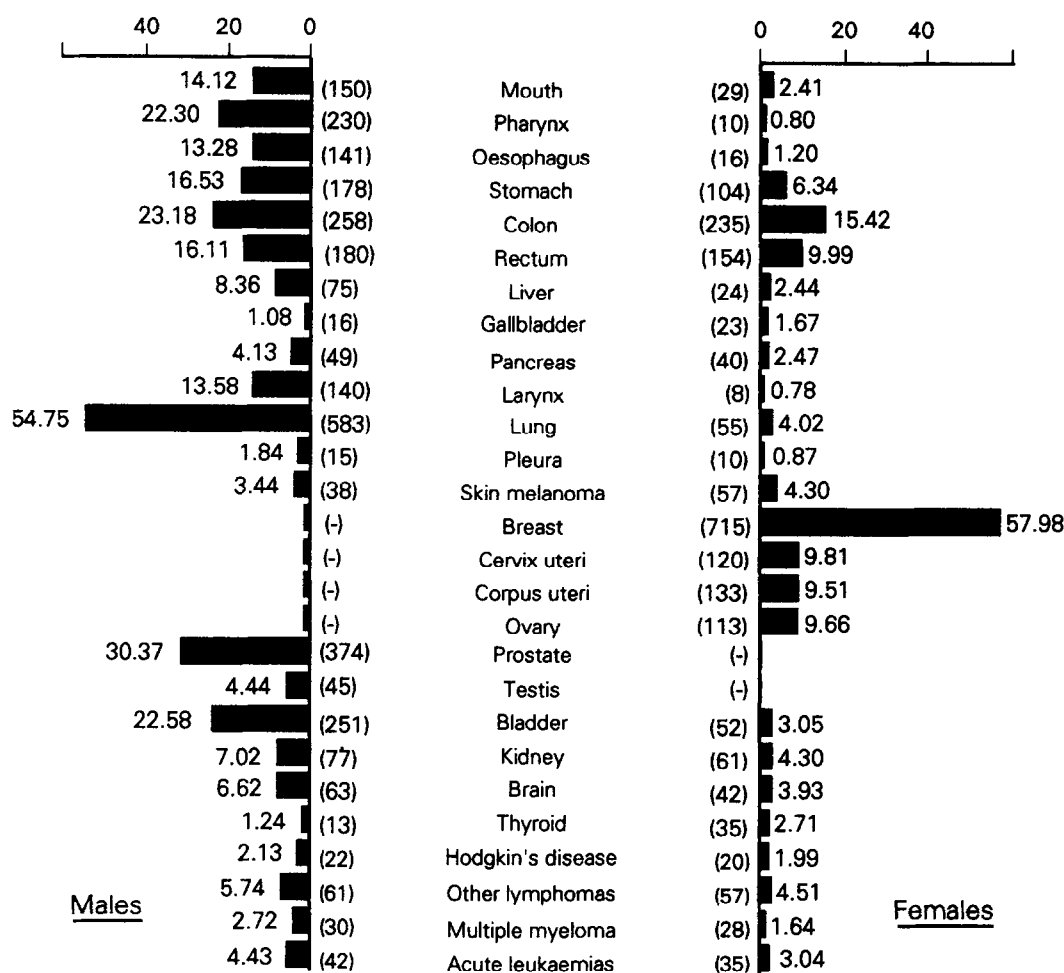


Fig. 1. Age-standardised (world) incidence rates from major cancer sites. Doubs, France, 1983-1986+. No. of registered cases is given in parentheses.

in the upper digestive and respiratory tract. The relative risk (RR) of multiple tumour for breast cancer is 1.9, half of them are contralateral breast cancers.

In this registry it is possible to examine the different modalities of therapy. In 1984 a study was conducted among 678 cases (head and neck, lung, breast, female genital, digestive tract cancers). 10% of all these cancers received no treatment, 73% surgery, 43% radiotherapy, 22% chemotherapy and 5% hormonotherapy (the percentage exceeds 100% because of combined treatment) [4]. In this study the health care expenditure during the 6 months after cancer diagnosis was evaluated. The average cost per patient was estimated to be \$4000 with a wide range (\$7731 for ovarian, \$2521 for colorectal cancer [5]). The high frequency of head and neck cancers prompted us to perform a case control study between 1986 and 1989 which confirms the high relation with tobacco and alcohol consumption. Typically, patients in France with head and neck cancer smoke brown tobacco (96% of all tobacco), especially cigarettes (80%). Wine is the most frequent source of alcohol (80%). Alcohol and tobacco have a multiplicative effect, the highest relative risk (RR 237) is found in the heaviest alcohol and tobacco consumption groups. A peculiarity of the Doubs area is the wood industry due to the proximity of large forests. A link has been sought between adenocarcinoma of bronchus, which accounts for 13% of all bronchus carcinoma, and wood industry. No association

was found in a case controlled study which has shown an influence of tobacco with a dose response relationship (RR 1.45 for 1-10 cigarettes/day, RR 3.29 for 11-20 cigarettes/day, RR 4.96 for >20 cigarettes/day [6]).

The Cancer Registry is a tool to observe disease patterns, time trends or clusters, it also serves as a basis for performance of good case control or cohort studies using all the cases registered in a defined geographical area.

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