

11.1. INTRODUCTION AND SUMMARY

Lung cancer incidence and mortality were almost the same, with an overall mortality/incidence ratio of 91.3% or a survival of only 8.7% (Table 11.1). For the first time since registration of lung cancers began, the number of cases exceeded that of deaths. This may reflect more accurate certification of deaths or the continuing decline in lung cancer mortality. Incidence in males shows a definite downward trend of almost 5% per year. Female rates have increased by 0.4% per year since 1994, but this trend is not statistically significant.

Table 11.1. Summary of incidence and mortality statistics: lung cancer

	INCIDENT CASES			DEATHS		
	males	females	both sexes	males	females	both sexes
All cancers (invasive, in situ and uncertain) (ICD-O-2 C34)						
1997 cases	909	511	1420	890	498	1388
% of all cancers	8.6%	4.7%	6.6%	22.2%	14.1%	18.4%
<i>Incidence and mortality rates (per 100,000 persons per year)</i>						
crude rate	50.2	27.8	38.9	49.2	27.1	38.1
World age-standardised rate	39.2	18.1		37.1	16.2	
European age-standardised rate	58.7	26.8		56.6	24.8	
cumulative risk (0-74)	4.8%	2.3%		4.5%	2.0%	
mortality/incidence ratio	0.979	0.975	0.977			
Time trends (all cancers)						
1994 cases	1048	496	1544	1029	519	1548
1995 cases	947	486	1433	1031	536	1567
1996 cases	963	495	1458	958	506	1464
1997 cases	909	511	1420	888	497	1385
1994-1997 average	967	497	1464	977	515	1491
annual % change 1994-97	-4.9%	+0.4%	-3.3%	-5.7%	-4.1%	-5.3%
95% confidence limits of trend	(-7.9%; -1.7%)	(-2.1%; 3.0%)	(-6.2%; -0.4%)	(-7.7%; -3.6%)	(-6.2%; -1.9%)	(-7.1%; -3.5%)
Invasive cancers only (ICD-10 C34)						
1997 cases	908	509	1417	888	497	1385
% of all invasive cancers	9.2%	5.8%	7.6%	22.3%	14.2%	18.5%
<i>Incidence and mortality rates (per 100,000 persons per year)</i>						
crude rate	50.2	27.7	38.9	49.1	27.1	38.0
World age-standardised rate	39.1	18.0		37.0	16.1	
European age-standardised rate	58.6	26.6		56.5	24.7	
cumulative risk (0-74)	4.8%	2.3%		4.5%	2.0%	
mortality/incidence ratio	0.978	0.976	0.977			

11.2. AGE AND SEX PROFILE

Table 11.2. Annual average number of cases, age-specific incidence rate and relative age-specific rate for lung cancers, 1994 to 1997

	MALES			FEMALES		
	cases	cases per 100,000	relative rate	cases	cases per 100,000	relative rate
0-4	0	0	0.0	0	0	0.0
5-9	0	0	0.0	0	0	0.0
10-14	0	0	0.0	0	0	0.0
15-19	0	0	0.1	1	0	0.3
20-24	0	0	0.1	1	1	0.1
25-29	0	0	0.0	0	0	0.0
30-34	1	1	0.1	0	0	0.0
35-39	3	3	0.3	2	2	0.1
40-44	10	8	0.5	9	7	0.4
45-49	19	17	0.6	9	8	0.3
50-54	56	60	1.0	24	26	0.7
55-59	80	104	1.1	29	39	0.8
60-64	128	187	1.2	54	78	1.2
65-69	191	316	1.3	85	126	1.5
70-74	201	402	1.2	106	171	1.6
75-79	150	426	1.0	99	202	1.6
80-84	91	435	0.9	57	165	1.1
>85	37	353	0.6	23	98	0.7
all ages	967	54	1.0	497	27	1.0

The largest number of cases in both men and women was in the 70 to 74 year age group, while the largest relative incidence rates were in the 65 to 69 and 70 to 79 year old populations, respectively (Table 11.2).

11.3. SUBSITES

Most cancers were assigned to a specific anatomical subsite within the lung (Table 11.3). Most of these (47%) were in the upper lobe.

Table 11.3. Subsites of lung cancer

	ICD-O-2 code	MALES		FEMALES	
		cases	% of total	cases	% of total
main bronchus	C34.0	127	14.0%	71	13.9%
upper lobe	C34.1	424	46.6%	241	47.2%
middle lobe	C34.2	49	5.4%	27	5.3%
lower lobe	C34.3	185	20.4%	106	20.7%
overlapping lesion	C34.8	25	2.8%	12	2.3%
lung NOS	C34.9	99	10.9%	54	10.6%
all cancers		909		511	

11.4. GEOGRAPHICAL DISTRIBUTION

INTERNATIONAL

Male lung cancer incidence in Ireland is quite low by international standards, being 18th of the 23 listed here (Table 11.4). On the other hand, female lung cancer incidence was the sixth highest, although lower than that in Northern Ireland, Scotland and England.

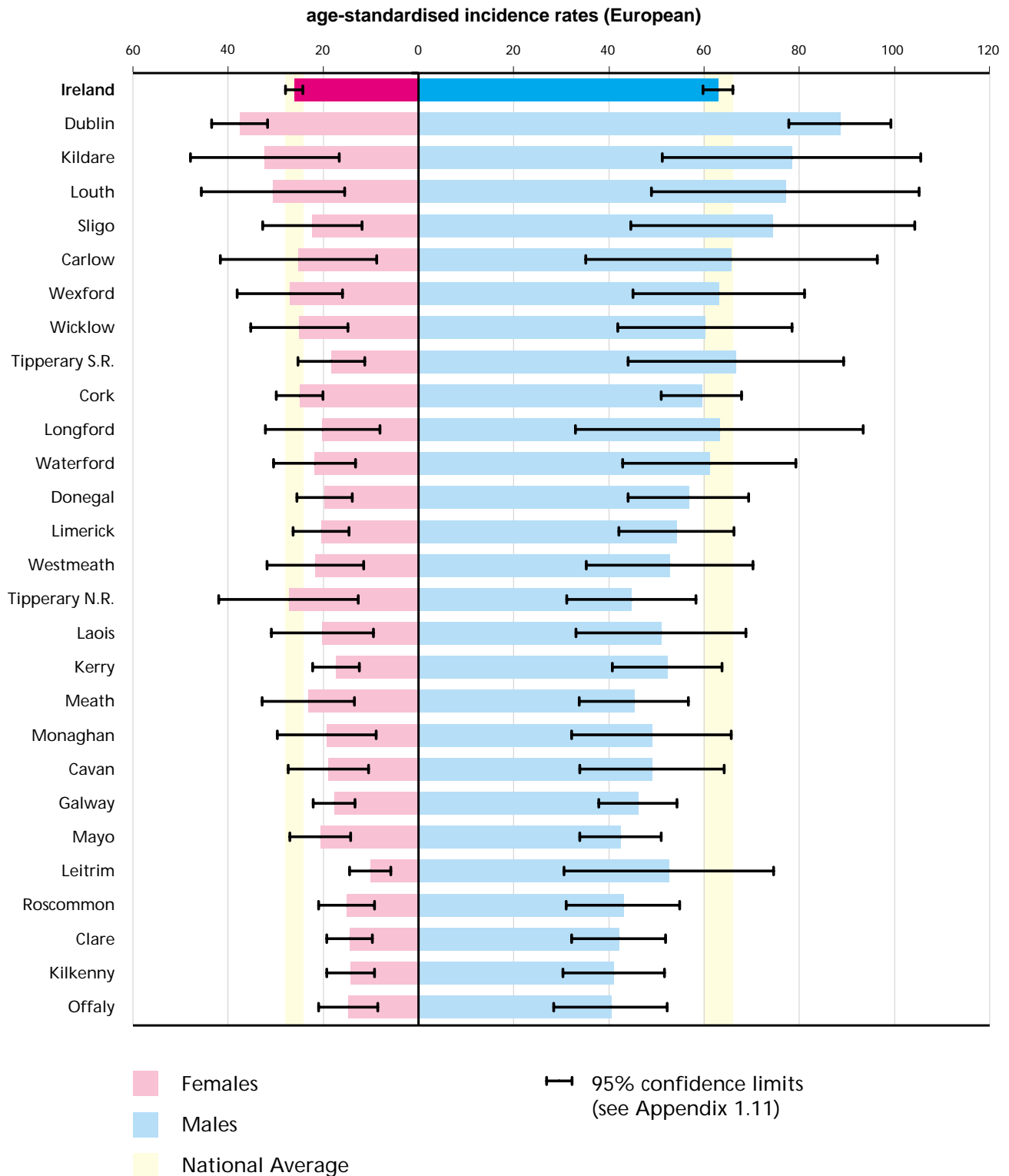
Table 11.4. Age-adjusted annual incidence rate (European standard population) and rank of rates by country, 1995: lung cancer (invasive cases only)

	MALES		FEMALES	
	age-standardised rate	rank	age standardised rate	rank
Scotland	107	2	51	1
Netherlands	96	7	26	7
Estonia	110	1	12	18
Czech Republic	102	5	18	14
Poland	105	3	14	16
Italy	94	8	20	11
Slovakia	103	4	11	19
Denmark	70	13	41	3
Slovenia	97	6	14	15
Germany	88	9	21	9
Iceland	56	21	50	2
N. Ireland	73	11	33	4
Switzerland	72	12	21	10
England	61	19	27	5
Austria	70	14	18	13
Ireland (1994-1997)	63	18	27	6
Malta	76	10	8	22
Finland	65	16	12	17
Spain	70	15	7	23
Norway	52	22	22	8
France	64	17	9	20
Bulgaria	59	20	8	21
Sweden	31	23	18	12

NATIONAL

Lung cancer incidence for both males and females was significantly above expected in Dublin (Figure 11.1). The incidence of lung cancer varied from 141% of expected for men in Dublin to 64% in Offaly and from 144% of expected for women in Dublin to 39% in Leitrim. The large number of cases and high rates in Dublin have a strong effect in pushing the national rates upward and this accounts for the number of counties where rates appear to be significantly low.

Figure 11.1. Age-adjusted (European population) rates and 95% confidence limits by county, 1994 to 1997: lung cancer



11.5. BASIS OF DIAGNOSIS AND HISTOLOGICAL TYPE

Table 11.5. Most valid basis of diagnosis of cancer

BASIS OF DIAGNOSIS	CASES	% OF TOTAL
tissue diagnosis	1091	76.8%
histology of primary	850	59.9%
histology of other site	56	3.9%
cytology	185	13.0%
clinical diagnosis	329	23.2%
clinical	37	2.6%
radiology	276	19.4%
post-mortem	6	0.4%
other/not known	10	0.7%
all cancers	1420	

A much lower number of lung cancers was histologically verified than for the other common cancers (Table 11.5). Only 60% had a biopsy of the primary while another 13% were confirmed as malignant by cytology.

One result of the low level of verification is the large number of cancers described only as "malignant neoplasm" (Table 11.6). The most frequent histological type was squamous cell carcinoma (27%), followed by small cell types (13.8%). In situ carcinomas were very rare.

Table 11.6. Morphology

Description	ICD-O-2 code	1997		1994-1997 AVERAGE	
		cases	% of total	cases	% of total
malignant neoplasm	8000/3	446	31.4%	439	30.0%
squamous cell carcinoma, NOS	8070/3	386	27.2%	421	28.8%
adenocarcinoma, NOS	8140/3	186	13.1%	170	11.6%
small cell carcinoma, NOS	8041/3	146	10.3%	125	8.6%
carcinoma, NOS	8010/3	41	2.9%	72	4.9%
oat cell carcinoma	8042/3	58	4.1%	71	4.8%
large cell carcinoma, NOS	8012/3	38	2.7%	51	3.5%
squamous cell carcinoma large cell, keratinizing	8071/3	52	3.7%	39	2.7%
bronchiolo-alveolar adenocarcinoma	8250/3	13	0.9%	15	1.0%
carcinoid tumour, NOS	8240/3	8	0.6%	9	0.6%
mucin-secreting adenocarcinoma	8481/3	3	0.2%	7	0.5%
adenosquamous carcinoma	8560/3	5	0.4%	5	0.3%
small cell carcinoma intermediate cell	8044/3	6	0.4%	5	0.3%
papillary adenocarcinoma, NOS	8260/3	4	0.3%	5	0.3%
squamous cell carcinoma in situ, NOS	8070/2	3	0.2%	4	0.3%
undifferentiated carcinoma, NOS	8020/3	0	0.0%	4	0.2%
all other types		25	1.8%	24	1.7%
Behaviour					
in situ		4	0.3%	5	0.4%
invasive		1416	99.7%	1459	99.6%
all cancers		1420		1464	100.0%

11.6. STAGE

Table 11.7. Summary stage

stage	1997		1994-1997 AVERAGE	
	cases	% of total	cases	% of total
0	4	0.3%	5	0.3%
I	56	3.9%	69	4.7%
II	20	1.4%	27	1.8%
IIIA	44	3.1%	36	2.5%
IIIB	31	2.2%	26	1.8%
IV	370	26.1%	359	24.5%
not staged	895	63.0%	942	64.3%
all cancers	1420		1464	

Staging information was also less complete for lung cancers and a full summary stage could be assigned to only 37% (Table 11.7). Most of those staged were advanced (Stage 4).

Table 11.9. TNM stage

T stage	N stage	M0		M1		NOT STAGED	
		cases	% of total	cases	% of total	cases	% of total
Tis/Ta	N0	4	0.3%	0	0.0%	0	0.0%
T1	N0	15	1.1%	1	0.1%	17	1.2%
	N1	4	0.3%	6	0.4%	7	0.5%
	N2	3	0.2%	2	0.1%	2	0.1%
	N3	0	0.0%	0	0.0%	3	0.2%
	not staged	8	0.6%	17	1.2%	20	1.4%
T2	N0	41	2.9%	12	0.8%	49	3.5%
	N1	16	1.1%	11	0.8%	36	2.5%
	N2	10	0.7%	14	1.0%	37	2.6%
	N3	8	0.6%	4	0.3%	7	0.5%
	not staged	20	1.4%	30	2.1%	53	3.7%
T3	N0	10	0.7%	4	0.3%	10	0.7%
	N1	4	0.3%	8	0.6%	13	0.9%
	N2	17	1.2%	8	0.6%	8	0.6%
	N3	1	0.1%	6	0.4%	3	0.2%
	not staged	8	0.6%	19	1.3%	40	2.8%
T4	N0	10	0.7%	4	0.3%	6	0.4%
	N1	5	0.4%	8	0.6%	5	0.4%
	N2	6	0.4%	14	1.0%	17	1.2%
	N3	1	0.1%	12	0.8%	6	0.4%
	not staged	17	1.2%	37	2.6%	78	5.5%
not staged	N0	13	0.9%	4	0.3%	7	0.5%
	N1	1	0.1%	7	0.5%	12	0.8%
	N2	8	0.6%	18	1.3%	6	0.4%
	N3	0	0.0%	3	0.2%	10	0.7%
	not staged	19	1.3%	121	8.5%	349	24.6%
all T	all N	249	17.8%	370	26.1%	801	56.3%
all cancers		1420					

Table 11.8. Extent of disease

EXTENT OF DISEASE	CASES	% OF TOTAL
local	93	6.5%
regional	156	11.0%
distant	370	26.1%
not known	801	56.4%
all cancers	1420	

Extent of disease data could be inferred for 44% of cases, of which the majority had distant spread (Table 11.8).

There was a wide spread of TNM stage (Table 11.9). Of the fully staged cases, the commonest TNM combination was T2 N0 M0 (41 cases; 3%).

11.7. TREATMENT

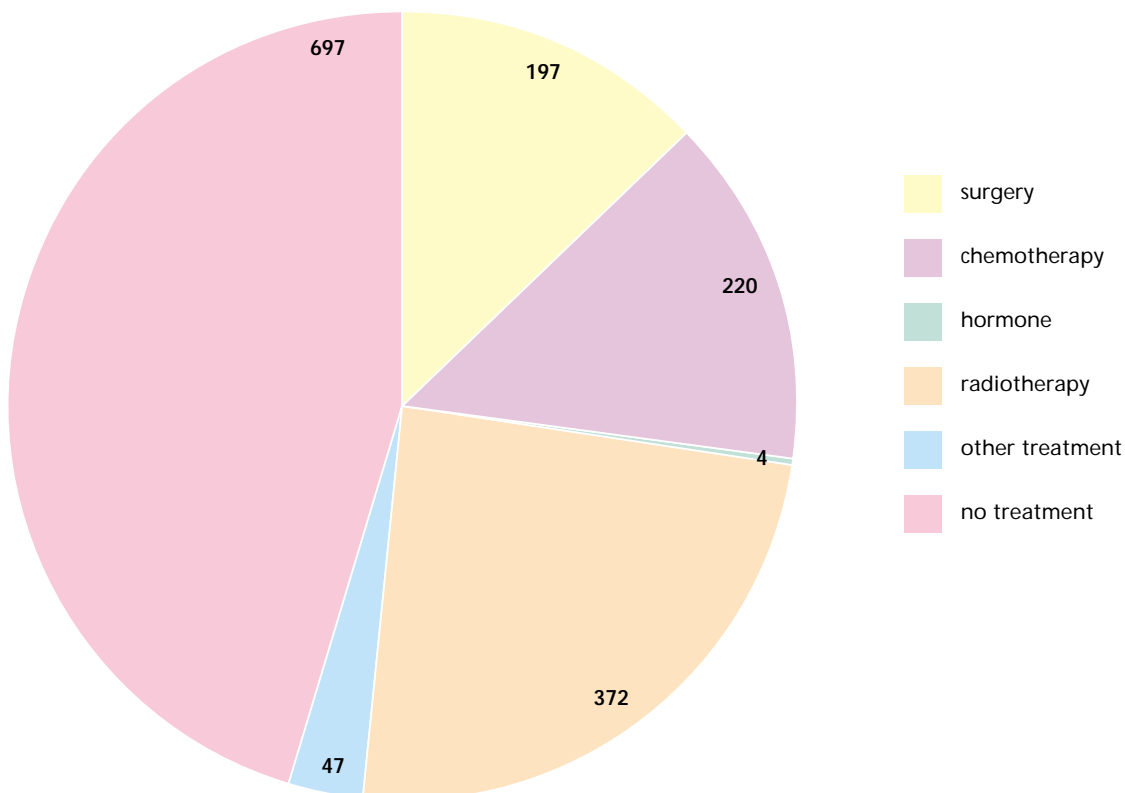
As would be expected from the low level of histological verification and staging, many lung cancers were not surgically removed, only 14% altogether having surgery (Table 11.10). Radiotherapy was the commonest treatment modality (26%) of cases, and most of these (76%) were not registered as having any other form of therapy. Combination therapy was quite uncommon (Figure 11.2), most patients having either radiotherapy, surgery or chemotherapy as the sole treatment. The role of surgery appears to be decreasing since 1994, while both radiotherapy and chemotherapy are becoming more common.

Table 11.10. Treatment summary

TREATMENT	NUMBER OF 1997 CASES TREATED	TRENDS IN % OF CASES TREATED			
		1997	1996	1995	1994
surgery	197	13.9%	15.3%	16.3%	17.2%
chemotherapy	220	15.5%	13.4%	14.4%	11.6%
hormone	4	0.3%	0.2%		
radiotherapy	372	26.2%	25.2%	26.2%	24.6%
other treatment	47	3.3%	4.4%	3.3%	35.6%
all cases treated	723	50.9%	48.8%	50.9%	63.9%
no treatment	697	49.1%	51.2%	49.1%	36.1%
all cases	1420	1420	1458	1433	1544

Figure 11.2. Frequent treatment combinations

Note: numbers indicated refer to the number of cases treated



11.8. SURVIVAL

Overall survival at five years was 13%±1% for men and 14%±2% for women (Table 11.11). Five-year survival for stage I cases was 39%±12% for men and 57%±13% for women, while survival for stage IV cases was 6%±2% for men and 4%±3% for women (Figure 11.3).

Table 11.11. One to five year relative survival (\pm 95% confidence limits) for cancers diagnosed from 1994 to 1997

sex	stage	cases	YEARS SINCE DIAGNOSIS					
			1		3		5	
			survival	95% confidence limits (\pm)	survival	95% confidence limits (\pm)	survival	95% confidence limits (\pm)
males	0	13	0.58	0.29	0.20	0.24	0.21	0.24
	I	185	0.64	0.07	0.48	0.08	0.39	0.12
	II	66	0.54	0.13	0.27	0.12	0.27	0.12
	III	162	0.30	0.07	0.10	0.05	0.09	0.06
	IV	930	0.12	0.02	0.07	0.02	0.06	0.02
	X	2361	0.28	0.02	0.14	0.01	0.13	0.02
	all	3717	0.26	0.01	0.14	0.01	0.13	0.01
females	0	5	0.62	0.45	0.67	0.45		
	I	74	0.71	0.11	0.54	0.12	0.57	0.13
	II	35	0.59	0.17	0.34	0.18	0.12	0.25
	III	74	0.26	0.10	0.19	0.09	0.21	0.09
	IV	475	0.12	0.03	0.07	0.02	0.04	0.03
	X	1266	0.28	0.03	0.17	0.02	0.15	0.03
	all	1929	0.27	0.02	0.16	0.02	0.14	0.02

Figure 11.3. Relative survival by stage for cases diagnosed from 1994 to 1997

