
Ireland Needs Healthier Airways *and* Lungs - *the* Evidence

INHALE Report, 2nd Edition

A Compilation of Statistical Data by

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FOREWORD

The publication of the first INHALE Report in 2003 was a major milestone for respiratory care in Ireland. For the first time, a clear and comprehensive insight into the scale, complexity and cost of respiratory diseases was made available. Drs Neil Brennan and Terry O'Connor have done a great service to the respiratory healthcare sector. As well as compiling this valuable data they have provided a benchmark for tracking changes and assessing trends in the mortality, morbidity and treatment of respiratory disease in this the 2nd Edition of INHALE and future reports. On behalf of all respiratory healthcare professionals, I wish to congratulate and thank them for this innovative and important work.

Five years after the publication of the first INHALE Report, INHALE 2nd edition reveals that there is still a long way to go in addressing the burden of lung disease.

Several of the report's findings are of particular concern. Comparisons with other countries and other diseases reveal that Ireland's record in tackling lung disease, rather than improving, has in fact fallen behind

Since the launch of the first report:

- Ireland has moved from 4th to 2nd place in the league of European countries with the highest death rate from respiratory disease. Now only Kyrgyzstan (formerly part of the Soviet Union) has a death rate from respiratory disease higher than Ireland.
- Deaths from respiratory disease now exceed those from coronary artery disease.
- Lung cancer deaths in women are approaching those from breast cancer and the gap between these two diseases has narrowed by two thirds.

Although progress has been made in reducing the numbers of deaths from respiratory, disease mortality data shows that this progress is slow:

- Respiratory disease still causes one in five deaths in Ireland.
- Death rates from respiratory disease are almost twice the EU average.
- Lung cancer is still the biggest cancer killer in Ireland.

Statistics on the prevalence and cost of respiratory disease show a similarly bleak picture:

- Respiratory disease is still among the most commonly reported long-term illnesses in young adults.
- Respiratory diseases are still the most common reason to visit a GP and the third most common reason for acute admission to hospital.
- Drug prescriptions for respiratory disease are amongst the highest for any organ system.

The statistics bear out what our members are experiencing first hand every day. Those who work in respiratory paediatrics face particular challenges. Prevalence of asthma, the most common chronic childhood disease, is rising. Increased resources to better manage the disease are required if this trend is to be reversed. The 600 plus Irish children with cystic fibrosis face particular difficulties. A lack of suitable isolation facilities and specialist nurses, physiotherapists, dieticians, psychologists and social workers means these children are not getting the level of care they require. The Pollack report on Cystic Fibrosis also highlighted the needs of the increasing adult population. Tuberculosis (TB) is another area where children are vulnerable, particularly if they are exposed to an adult who is infectious. As Ireland has not yet attained World Health Organisation goals in terms of TB elimination, much needs to be done in this regard. Significant work and investment to adequately resource TB control and treatment in adults and in children is needed. We eagerly await the Report of the National Tuberculosis Advisory Committee expected later this year. There has also been a dramatic increase in Obstructive Sleep Apnoea Syndrome associated with rising obesity levels. This has placed huge demands on the small number of centres providing Sleep Disorder assessments.

The message is clear. Lung disease is a major cause of death and diminished quality of life is responsible for the suffering of tens of thousands of Irish citizens each year. Decisive action is needed to stem the rising health and economic burden this represents.

The Irish Thoracic Society acknowledges and supports steps that have been taken to date in monitoring and improving services in areas like TB, cystic fibrosis, cancer and COPD. In the case of COPD in particular we look forward to the report of the National COPD Strategy Group which is working towards establishing an improved, standardised and seamless model of care. The work of the Irish Hospice Foundation in conjunction with the HSE to extend access to palliative care to patients with COPD is also a very positive step. Both our members and our patients have experienced the benefits of conjoint hospital/community based initiatives such as Assisted Early Discharge, COPD Outreach and Pulmonary Rehabilitation programmes. We also applaud the Government's courage and leadership in introducing a workplace ban on smoking in March 2004. Regrettably many young people are starting to smoke and the progress being made must be sustained by more public education and budget initiatives.

We believe that all these measures are working towards providing a better system of care for our patients. However we believe that without the cohesion of an overarching strategy they will fail to achieve their full potential. On behalf of the respiratory healthcare community, The Irish Thoracic Society is now calling for an integrated and adequately resourced respiratory strategy. We believe that this should be underpinned by a co-ordinated approach with strong linkages between hospital, community and primary care.

We believe this to be the best way forward for our patients. Without it it is likely that when we report again in five years time the picture will be no better, if not worse. For the sake of our patients, we must ensure this is not the case.

Dr JJ Gilmartin, President, the Irish Thoracic Society
February 2008

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SUMMARY

Mortality

- In Ireland deaths from respiratory disease exceed those from coronary artery disease and are almost equal to those due to non respiratory cancer.
- Ireland has the highest death rate from respiratory disease in western Europe – death rates are almost twice the EU average.
- In Europe, only Kyrgyzstan has a death rate from respiratory disease higher than Ireland.
- The relative burden of respiratory disease in Ireland is rising, as that of heart disease decreases.
- Respiratory disease kills one in five people in Ireland.
- Lung cancer is the biggest cancer killer in Ireland.
- Lung cancer deaths in women are now approaching those from breast cancer and the gap has narrowed by two thirds since 1999.
- The number of deaths from mesothelioma is rising.
- Social inequality causes a higher proportion of deaths in respiratory disease than in any other organ system.

Morbidity

- The second most commonly reported long-term illnesses in young adults (under 44 years old) are conditions of the respiratory system.
- Lung cancer is the third most common cancer in both men and women.
- Survival rates for lung cancer are very low – the one year survival rate is 23.7% and the five year survival rate is 8.6%.
- Respiratory tuberculosis remains a significant problem although the incidence rate per 100,000 has remained largely unchanged since 2000.

Treatment

- Respiratory disease (8.9%) is the third most common illness responsible for acute admission to hospital after digestive system (11.9%) and circulatory system (11.3%) disorders.
- Respiratory disease is the most common reason to visit the GP – over a fifth of people will visit their GP at least once a year because of a respiratory condition.
- Cases of chronic obstructive lung disease and pneumonia take up more than 143,771 hospital bed days a year.
- Drug prescription rates for respiratory disease are among the highest for any organ system as reflected in the fact that the PCRS payout for respiratory drugs is the fourth highest, exceeded only by cardiovascular system, nervous system and alimentary tract and metabolism system drugs.

Costs

- Respiratory disease cost the Irish Health Service €437.1 million in 2006.
- The total direct medical cost for respiratory disease in Ireland was €559.4 million in 2006.

INTRODUCTION

Background

The first INHALE project was stimulated by the publication of the Report entitled ‘The Burden of Lung Disease’ by the British Thoracic Society in the UK and was published as a supplement to the Irish Medical Journal in 2003. Five years after the publication of the first INHALE report (1), it is timely to publish an update to the current statistics with regard to respiratory disease in Ireland. This report is an attempt to collate in a single document the information that will demonstrate the huge health and economic burden of pulmonary disease in Ireland as well as pointing out areas where more data are needed. Various reports of the Central Statistics Office, the Economic and Social Research Institute, and the Institute of Public Health provide the foundation for this compendium.

Aims

This report aims to:

- quantify the amount of death and disease caused by respiratory disease in Ireland today
- compare the burden of respiratory disease with that of the other major killers – coronary artery disease and cancer
- highlight recent trends in respiratory disease
- describe current levels of treatment for respiratory disease
- identify health inequalities in respiratory disease
- provide information on the economic costs of respiratory disease

The report is divided into four main sections: mortality, morbidity, treatment and economic costs.

Defining Respiratory Disease

In this report, respiratory disease is defined as including firstly, all those conditions included in the ‘Respiratory Disease’ chapter of the World Health Organisation’s (WHO) International Classification of Diseases (ICD) and secondly a range of other conditions affecting the respiratory system which are routinely managed by respiratory health professionals particularly tuberculosis, cancers of the respiratory system, pulmonary circulatory disease, congenital perinatal respiratory disease and disease due to foreign body in the respiratory system.

It is not possible to combine data for all of the above diseases in all situations given the nature of the sources of data used for this report. In many cases therefore disease estimates understate the true burden of disease. Each table clearly states which diseases were included to produce the “all respiratory disease” figure.

MORTALITY

Total Mortality

Diseases of the respiratory system are the cause of one in five deaths in Ireland today (2). In 2004, respiratory disease caused over 6,000 deaths; approximately 3,100 deaths in men and 2,900 in women (Table 1.1 and Figs 1.1a, 1.1b, and 1.1c). In Ireland, deaths from respiratory disease exceed those from coronary heart disease (which accounted for 5,485 deaths in 2004), and are almost the same as deaths from non-respiratory cancer (6,225). There is a particularly marked excess of respiratory deaths in women, with respiratory disease the second highest cause of death (21%) after non-respiratory cancer (22%). This is compared to coronary heart disease (CHD) which accounts for 17% of all mortality in women (Table 1.1 and Figs 1.1a, 1.1b, and 1.1c).

Mortality by type of respiratory disease

One third (33%) of deaths from respiratory disease are from pneumonia, which is the leading respiratory killer. In all, 1,968 people died from pneumonia in Ireland in 2004 (Table and Fig. 1.2). Cancers of the respiratory system are the second largest cause of respiratory death, accounting for over one quarter (28%) of total respiratory mortality (Table and Fig. 1.2) These include cancers of the nasal cavities (11 deaths), larynx (48), pleura (24), and most importantly, the trachea, bronchus and lung (1,609) (Table and Fig. 1.2) (*Cancer of the trachea, bronchus and lung is commonly known as lung cancer and will be referred to as such in this report*).

COPD is the third biggest cause of respiratory death, accounting for over one fifth (22%) of total respiratory mortality. The remaining one sixth of respiratory deaths (1,038 in 2004) are caused by a wide range of respiratory diseases, including tuberculosis, acute respiratory infections, congenital anomalies, pneumoconioses and foreign bodies in the respiratory system (Table 1.2). Because of the difficulty in identifying cystic fibrosis deaths in published statistics, these do not appear in Table 1.2. See Section 2 (Morbidity) below.

Mortality from lung cancer

Lung cancer is the biggest cancer killer in Ireland causing around one in five of all cancer deaths. In 2004, 23% of cancer mortality in men and 17% of cancer mortality in women was due to lung cancer (Table 1.3). The number of women in Ireland dying from lung cancer (625) is approaching the number dying from breast cancer (663) (Table and Fig. 1.3). This gap has closed by two thirds in the five years since this report was last carried out when lung cancer accounted for 532 deaths compared to breast cancer with 645 deaths. If this trend continues it will not be long before deaths from lung cancer in women exceed those from breast cancer, as is now the case in the UK.

Trends in death rates in Ireland

Death rates from respiratory disease appear to have fallen by 32% between 1979 and 2004 whilst CHD rates fell by 56% and cancer rates fell by 9% (3). However, the fall in death rates from respiratory disease since 1979 is partly explained by ICD coding changes for pneumonia deaths which came into effect in the early/mid 1980s, resulting in an apparent sharp fall in death rate for respiratory disease between 1986 and 1987.

Since 1987 death rates for respiratory disease have dropped by 23% while death rates for CHD have fallen by 52% and from cancer (excluding lung cancer) by 14% (Table and Figure 1.4). However, more recently, respiratory deaths have remained unchanged while those from CHD continue to decline.

It is also possible to obtain comparable data for Northern Ireland from the WHO database. This shows that Northern Ireland had a much higher death rate from coronary heart disease in the 1970s, especially in males

(Table and Figure 1.5). Direct comparison between the two jurisdictions is difficult due to inconsistencies in coding methodology. When comparing Republic of Ireland and Northern Ireland data, it is important to note that Northern Ireland data has moved to ICD 10 coding since 2001 whereas Republic of Ireland is still using ICD 9.

Occupational lung disease

In 2002 there were 19 deaths from pleural tumours (ICD Code 163) i.e. pleural mesothelioma, two deaths from asbestosis, one from unspecified pneumoconiosis and 9 from farmers lung (4). In absolute terms these numbers are small. However trend data set out in Table 1.6 suggest a rise in deaths from mesothelioma in the five years up to 2002. The numbers of deaths from other occupational lung diseases are so small as to make trend analysis of little relevance.

Socio-economic differences

There are clear social gradients in respiratory disease mortality. These differences are more acute for respiratory disease mortality than for mortality in general. This phenomenon has been extensively documented in the Report of the Institute of Public Health in Ireland “Inequalities in Mortality 1989-1998” (5), and is specifically acknowledged in the Department of Health’s Strategy Document “Quality and Fairness” (6). In both the North and the South of Ireland the all cause mortality rate in the lowest occupational class was 100-200% higher than the rate in the highest occupational class (5). While this was evident for nearly all of the main causes of death, respiratory diseases have considerably the worst occupational class difference:

- for respiratory diseases it was over 200% higher
- for injuries and poisonings it was over 150% higher
- for circulatory diseases it was over 120% higher
- for cancers it was over 100% higher

Social inequality therefore causes a higher proportion of deaths in respiratory disease than in any other disease area. Very recent data from the HSE Population Health Directorate shows that within the family of respiratory diseases chronic obstructive pulmonary disease, lung cancer and tuberculosis showed the most marked social class differentials (Table 1.7) (36). It has not proved possible to obtain data relating to working years lost due to social class inequalities in death rates from respiratory disease.

One study has estimated that half the seasonal excess winter mortality is associated with poor housing standards, with a particularly strong effect for respiratory and cardiovascular diseases. It attributes 271 respiratory deaths per year to poor housing conditions (7).

International comparisons

Data from the World Health Organisation shows that death rates from diseases of the respiratory system in Ireland are almost double the EU average (3). The difference between Ireland and other EU countries is particularly marked for women and in France and Switzerland death rates due to respiratory disease in women are less than a third of the rate among Irish women (Table and Figure 1.8).

Among European countries, only one state, Kyrgyzstan, formerly part of the USSR, has a death rate from respiratory disease higher than Ireland. Of the western economically well developed countries only the UK has mortality figures approaching those of Ireland (Table and Fig.1.8). WHO trend data show that between 1970 and 2003, death rates from respiratory disease fell by about 51% in Europe, 49% in the EU, 46% in the UK and by 44% in Ireland (Table 1.9 and Fig. 1.9). Overall death rates from lung cancer in Ireland are close to the European average but in women the rate in Ireland is more than double the European average (Table 1.10).

Table 1.1
Deaths from different causes by sex and age, 2004, Republic of Ireland

		All Ages	Under 35	35-44	45-54	55-64	65-74	75 & over
All causes	Men	14,801	825	461	899	1,819	3,305	7,492
	Women	13,864	389	277	561	1,093	2,078	9,466
	Total	28,665	1,214	738	1,460	2,912	5,383	16,958
All diseases of the lung (010-012, 018, 135, 137, 161-163, 415-417, 460-519, 748, 768-770, 933, 934)	Men	3,127	43	25	107	356	694	1,902
	Women	2,880	40	23	73	197	486	2,061
	Total	6,007	83	48	180	553	1,180	3,963
Pneumonia and influenza (480-487)	Men	878	8	5	19	47	99	700
	Women	1,095	6	3	23	30	85	948
	Total	1,973	14	8	42	77	184	1,648
Cancer of the Respiratory System (160-163, 212)	Men	1,054	2	10	61	214	352	415
	Women	638	3	10	31	109	219	266
	Total	1,692	5	20	92	323	571	681
Chronic Obstructive Lung Disease (490-496)	Men	765	2	2	8	53	162	538
	Women	652	3	5	12	29	120	483
	Total	1,417	5	7	20	82	282	1,021
Pulmonary Circulatory Disease (415-417)	Men	54	–	2	5	9	11	27
	Women	80	2	–	4	8	16	50
	Total	134	2	2	9	17	27	77
All diseases of the circulatory system (excluding pulmonary disease) (390-459 excluding 415-417)	Men	5,379	45	97	327	659	1,219	3,032
	Women	5,153	11	38	89	195	602	4,218
	Total	10,532	56	135	416	854	1,821	7,250
Coronary Heart Disease (410-414)	Men	3,083	7	45	202	439	774	1,616
	Women	2,402	1	9	36	91	302	1,963
	Total	5,485	8	54	238	530	1,076	3,579
Stroke (430-438)	Men	848	9	17	39	61	166	556
	Women	1,258	2	20	26	43	124	1,043
	Total	2,106	11	37	65	104	290	1,599
All cancer (excluding cancers of the respiratory system) (140-239 excluding 160-163, 212)	Men	3,172	49	71	224	471	918	1,439
	Women	3,053	62	127	249	512	674	1,429
	Total	6,225	111	198	473	983	1,592	2,868
Colo-rectal cancer (153-154)	Men	558	1	6	32	87	187	245
	Women	400	2	6	24	55	77	236
	Total	958	3	12	56	142	264	481
Breast cancer (174, 175)	Men	3	–	–	–	1	1	1
	Women	663	4	49	97	145	151	217
	Total	666	4	49	97	146	152	218
Digestive diseases (520-579)	Men	487	8	32	40	82	119	206
	Women	521	7	14	33	46	69	352
	Total	1,008	15	46	73	128	188	558
Injuries and poisoning (excluding foreign body in respiratory system) (800-999 excluding 933-934)	Men	993	396	163	128	112	76	118
	Women	401	80	35	51	39	38	158
	Total	1,394	476	198	179	151	114	276
All other causes	Men	1,643	284	73	73	139	279	795
	Women	1,856	189	40	66	104	209	1,248
	Total	3,499	473	113	139	243	488	2,043

ICD codes (9th revision) in parentheses

Source: Central Statistics Office (2007) Report on Vital Statistics 2004 (2).

Figure 1.1a
Deaths by cause, 2004, Republic of Ireland

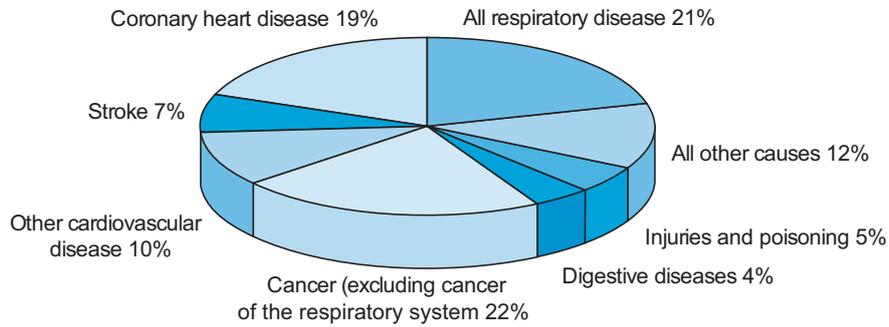


Figure 1.1b
Deaths by cause, men, 2004, Republic of Ireland

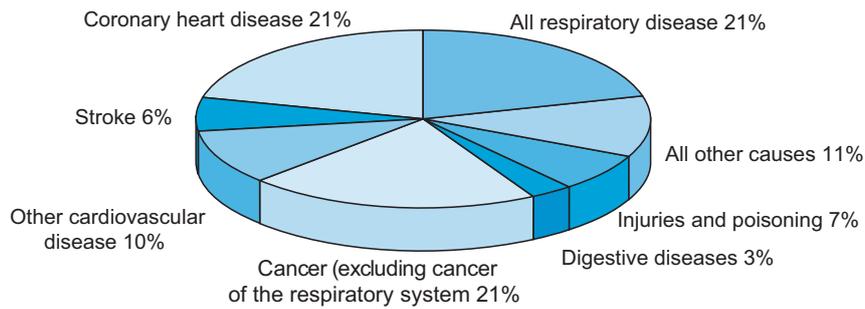


Figure 1.1c
Deaths by cause, women, 2004, Republic of Ireland

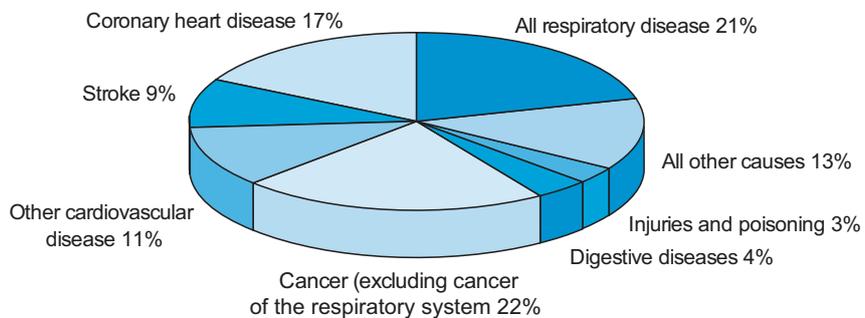


Table 1.2
Respiratory disease deaths by cause, sex and age, 2004, Republic of Ireland

		All Ages	Under 35	35-44	45-54	55-64	65-74	75 & over
All diseases of the lung (010-012, 018, 135, 137, 161-163, 415-417, 460-519, 748, 768-770, 933, 934)	Men	3,127	43	25	107	356	694	1,902
	Women	2,880	40	23	73	197	486	2,061
	Total	6,007	83	48	180	553	1,180	3,963
Tuberculosis	Men	21	1	1	1	2	5	11
	Women	15	–	–	–	2	4	9
	Total	36	1	1	1	4	9	20
Respiratory tuberculosis (010-012)	Men	10	1	1	–	2	2	4
	Women	8	–	–	–	–	2	6
	Total	18	1	1	–	2	4	10
Miliary tuberculosis	Men	2	–	–	–	–	1	1
	Women	1	–	–	–	1	–	–
	Total	3	–	–	–	1	1	1
Late effects of tuberculosis	Men	9	–	–	1	–	2	6
	Women	6	–	–	–	1	2	3
	Total	15	–	–	1	1	4	9
Cancers of the Respiratory System (160-163, 212)	Men	1,054	2	10	61	214	352	415
	Women	638	3	10	31	109	219	266
	Total	1,692	5	20	92	323	571	681
Cancer of the nasal cavities (160)	Men	7	–	1	–	–	3	3
	Women	4	–	–	2	–	–	2
	Total	11	–	1	2	–	3	5
Cancer of the larynx (161)	Men	41	–	–	2	15	4	20
	Women	7	–	–	–	2	2	3
	Total	48	–	–	2	17	6	23
Cancer of the trachea, bronchus and Lung (162)	Men	984	2	9	56	196	338	383
	Women	625	3	10	29	106	217	260
	Total	1,609	5	19	85	302	555	643
Cancer of the pleura (163)	Men	22	–	–	3	3	7	9
	Women	2	–	–	–	1	–	1
	Total	24	–	–	3	4	7	10
Benign tumours of the respiratory System (212)	Men	–	–	–	–	–	–	–
	Women	–	–	–	–	–	–	–
	Total	–	–	–	–	–	–	–
Pulmonary circulatory disease (415-417)	Men	54	–	2	5	9	11	27
	Women	80	2	–	4	8	16	50
	Total	134	2	2	9	17	27	77
Acute pulmonary heart disease (415)	Men	46	–	1	4	8	10	23
	Women	72	2	–	4	6	12	48
	Total	118	2	1	8	14	22	71
Chronic pulmonary heart disease (416)	Men	8	–	1	1	1	1	4
	Women	8	–	–	–	2	4	2
	Total	16	–	1	1	3	5	6
Other diseases of the pulmonary Circulation (417)	Men	–	–	–	–	–	–	–
	Women	–	–	–	–	–	–	–
	Total	–	–	–	–	–	–	–
Acute respiratory infections (460-466)	Men	1	–	–	1	–	–	–
	Women	3	–	–	–	1	–	2
	Total	4	–	–	1	1	–	2

TABLE 1.2 – continued

		All Ages	Under 35	35-44	45-54	55-64	65-74	75 & over
Pneumonia and influenza (480-487)	Men	878	8	5	19	47	99	700
	Women	1,095	6	3	23	30	85	948
	Total	1,973	14	8	42	77	184	1,648
Pneumonia (480-486)	Men	877	8	5	19	47	99	699
	Women	1,091	5	3	23	29	85	946
	Total	1,968	13	8	42	76	184	1,645
Influenza (487)	Men	1	–	–	–	–	–	1
	Women	4	1	–	–	1	–	2
	Total	5	1	–	–	1	–	3
Chronic Obstructive Lung Disease (490-492, 494-496)	Men	734	–	1	6	49	154	524
	Women	607	–	2	5	26	113	461
	Total	1,341	–	3	11	75	267	985
Asthma (493)	Men	31	2	1	2	4	8	14
	Women	45	3	3	7	3	7	22
	Total	76	5	4	9	7	15	36
Pneumoconiosis (500-508)	Men	58	2	–	4	7	11	34
	Women	67	–	–	2	3	7	55
	Total	125	2	–	6	10	18	89
Congenital and perinatal respiratory disease (748, 768-770)	Men	18	18	–	–	–	–	–
	Women	24	24	–	–	–	–	–
	Total	42	42	–	–	–	–	–
Congenital anomalies of the respiratory System (748)	Men	4	4	–	–	–	–	–
	Women	5	5	–	–	–	–	–
	Total	9	9	–	–	–	–	–
Respiratory disorders specific to the perinatal period (768-770)	Men	14	14	–	–	–	–	–
	Women	19	19	–	–	–	–	–
	Total	33	33	–	–	–	–	–
Foreign body in the respiratory system (933-934)	Men	17	7	3	3	–	4	–
	Women	9	–	3	–	1	3	2
	Total	26	7	6	3	1	7	2
Foreign body in pharynx or larynx (933)	Men	16	7	3	2	–	4	–
	Women	9	–	3	–	1	3	2
	Total	25	7	6	2	1	7	2
Foreign body in trachea, bronchus or Lung (934)	Men	1	–	–	1	–	–	–
	Women	–	–	–	–	–	–	–
	Total	1	–	–	1	–	–	–
Other respiratory disease (135, 470-478, 510-519)	Men	268	3	3	5	24	53	180
	Women	301	3	1	3	14	32	248
	Total	569	6	4	8	38	85	428
Sarcoidosis (135)	Men	8	–	1	3	3	1	–
	Women	1	–	1	–	–	–	–
	Total	9	–	2	3	3	1	–
Other conditions of the upper respiratory tract (470-478)	Men	–	–	–	–	–	–	–
	Women	–	–	–	–	–	–	–
	Total	–	–	–	–	–	–	–
Other respiratory disease (510-519)	Men	260	3	2	2	21	52	180
	Women	300	3	–	3	14	32	248
	Total	560	6	2	5	35	84	428

ICD codes (9th revision) in parentheses

Source: Central Statistics Office (2007) Report on Vital Statistics, 2004 (2).

Figure 1.2
Respiratory disease deaths by cause, 2004, Republic of Ireland

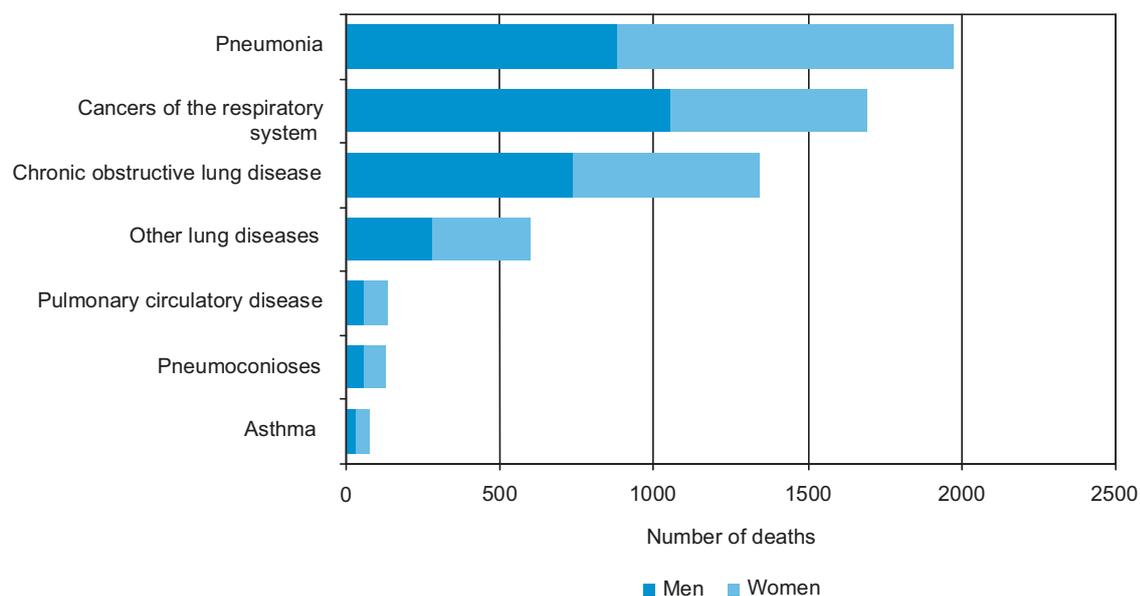


Table 1.3
Cancer deaths by type of cancer, sex and age, 2004, Republic of Ireland

		All Ages	Under 35	35-44	45-54	55-64	65-74	75 & over
All cancer (140-239)	Men	4,226	51	81	285	685	1,270	1,854
	Women	3,691	65	137	280	621	893	1,695
	Total	7,917	116	218	565	1,306	2,163	3,549
Oesophagus (150)	Men	201	–	6	22	44	70	59
	Women	124	1	1	6	13	35	68
	Total	325	1	7	28	57	105	127
Stomach (151)	Men	196	–	7	15	40	60	74
	Women	109	–	3	7	11	24	64
	Total	305	–	10	22	51	84	138
Colon (153)	Men	333	–	2	14	55	109	153
	Women	284	1	3	18	39	48	175
	Total	617	1	5	32	94	157	328
Rectum (154)	Men	225	1	4	18	32	78	92
	Women	116	1	3	6	16	29	61
	Total	341	2	7	24	48	107	153
Liver (155)	Men	97	–	1	5	24	26	41
	Women	75	–	1	2	13	16	43
	Total	172	–	2	7	37	42	84
Pancreas (157)	Men	185	–	3	15	39	62	66
	Women	195	–	5	10	25	43	112
	Total	380	–	8	25	64	105	178
Lung (162)	Men	984	2	9	56	196	338	383
	Women	625	3	10	29	106	217	260
	Total	1,609	5	19	85	302	555	643

TABLE 1.3 – continued

		All Ages	Under 35	35-44	45-54	55-64	65-74	75 & over
Pleura (163)	Men	22	–	–	3	3	7	9
	Women	2	–	–	–	1	–	1
	Total	24	–	–	3	4	7	10
Melanoma of skin (172)	Men	43	4	2	13	8	5	11
	Women	60	5	4	6	8	8	29
	Total	103	9	6	19	16	13	40
Breast (174)	Women	663	4	49	97	145	151	217
	Total	663	4	49	97	145	151	217
Uterus (179, 182)	Women	60	–	–	5	11	11	33
	Total	60	–	–	5	11	11	33
Cervix (180)	Women	93	5	18	19	15	15	21
	Total	93	5	18	19	15	15	21
Ovary (183)	Women	252	1	9	22	66	68	86
	Total	252	1	9	22	66	68	86
Prostate (185)	Men	550	–	–	5	27	124	394
	Total	550	–	–	5	27	124	394
Bladder (188)	Men	99	–	1	5	13	27	53
	Women	50	2	–	3	3	10	32
	Total	149	2	1	8	16	37	85
Kidney (189)	Men	129	–	3	15	30	38	43
	Women	48	1	2	4	7	10	24
	Total	177	1	5	19	37	48	67
Brain (191)	Men	160	18	17	35	25	37	28
	Women	104	14	9	9	22	25	25
	Total	264	32	26	44	47	62	53
Non-Hodgkins Lymphoma (200, 202)	Men	125	1	3	14	23	41	43
	Women	120	2	4	9	13	34	58
	Total	245	3	7	23	36	75	101
Leukaemia (204 - 208)	Men	183	11	3	6	15	53	95
	Women	110	8	2	2	12	26	60
	Total	293	19	5	8	27	79	155

Source: Central Statistics Office (2007) Report on Vital Statistics 2004 (2).

Figure 1.3
Proportion of cancer deaths by type of cancer and sex, 2004, Republic of Ireland

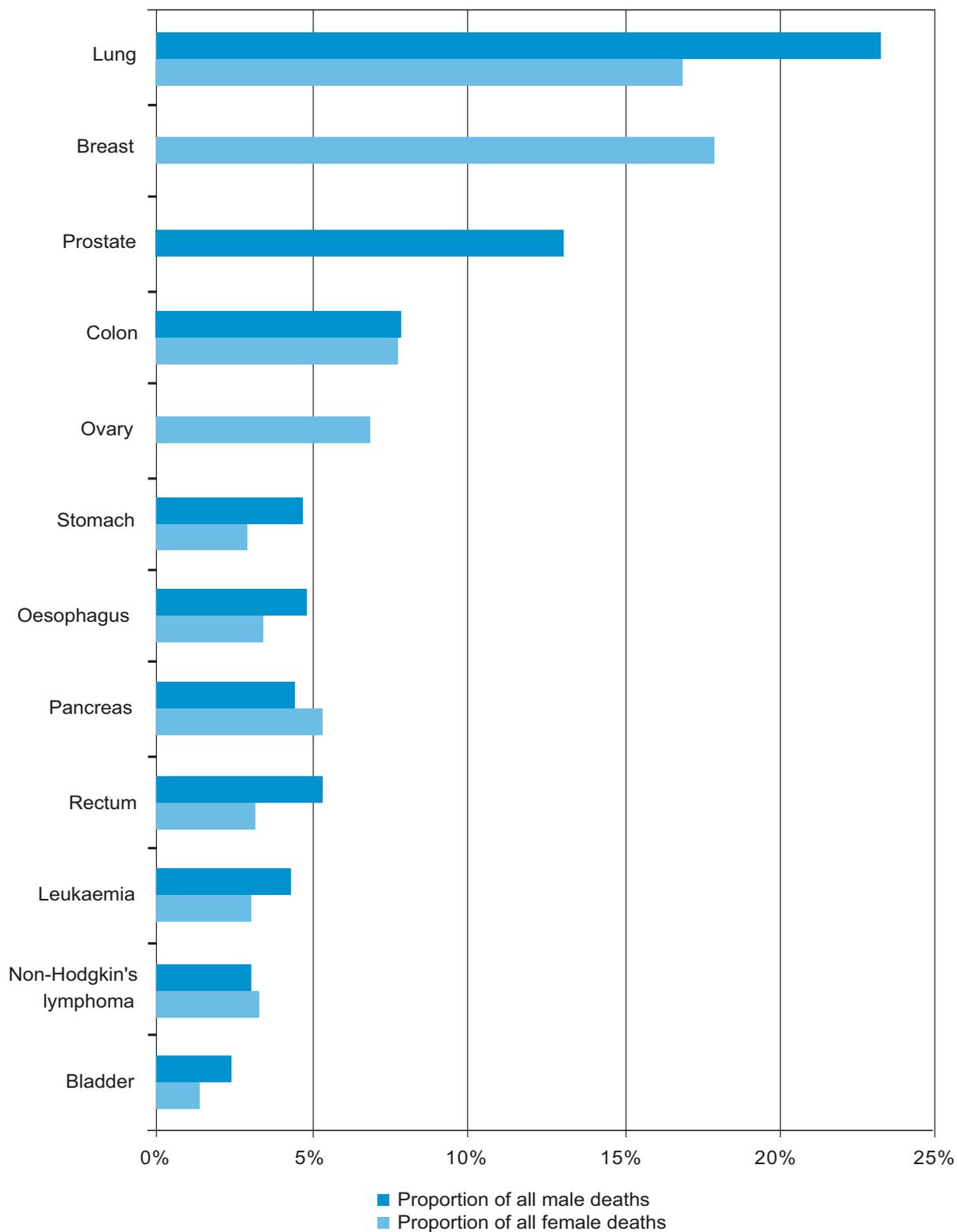


Table 1.4
Age-standardised death rates per 100,000 population from all respiratory disease, CHD and cancer
(excluding lung cancer), 1979-2004, Republic of Ireland

MEN (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	261	262	271	255	268	256	278	279	229	241	247	249	230	221	233	228	239	219	218	219	225	210	193	185	186	167
Coronary heart disease	394	387	395	390	400	384	399	390	371	363	351	339	329	309	319	306	307	288	268	265	250	234	213	203	180	171
Cancer	177	181	174	179	180	176	186	186	195	197	194	197	198	202	202	194	200	195	198	192	196	189	186	183	174	177
WOMEN (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	133	136	133	131	142	124	134	142	122	124	129	126	127	116	123	121	132	126	125	126	137	127	114	110	111	103
Coronary heart disease	179	182	180	180	181	175	182	180	169	169	175	157	149	146	149	146	145	137	133	126	124	111	102	101	91	84
Cancer	156	159	150	158	156	157	152	160	160	161	166	154	160	161	154	155	150	148	153	144	145	146	144	133	136	130
ALL (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	190	192	193	185	198	181	196	201	167	174	179	177	170	160	169	164	176	164	163	164	173	161	146	140	142	129
Coronary heart disease	279	277	279	277	282	270	281	275	261	257	255	238	230	220	225	218	217	205	194	188	181	166	152	148	131	124
Cancer	164	168	159	166	165	164	165	170	173	175	177	170	175	177	173	170	170	167	170	162	164	162	160	153	150	149

ICD codes, 9th Revision, age standardised using the European Standard Population.

When comparing Republic of Ireland and Northern Ireland data, it is important to note that Northern Ireland data has moved to ICD 10 coding since 2001 whereas Republic of Ireland is still using ICD9.

All respiratory disease includes tuberculosis, cancers of the trachea, bronchus and lung and all of the ICD respiratory chapter. The structure of the database means that non-respiratory TB is also included, and mesothelioma, cystic fibrosis, pulmonary circulatory disease, respiratory sarcooidosis and respiratory disorders specific to the perinatal period are not included.

Source: World Health Organisation (2007), European Health for all Database (3).

Figure 1.4
Age-standardised death rates per 100,000 population from all respiratory disease, CHD and cancer
(excluding lung cancer), 1979-2004, Republic of Ireland

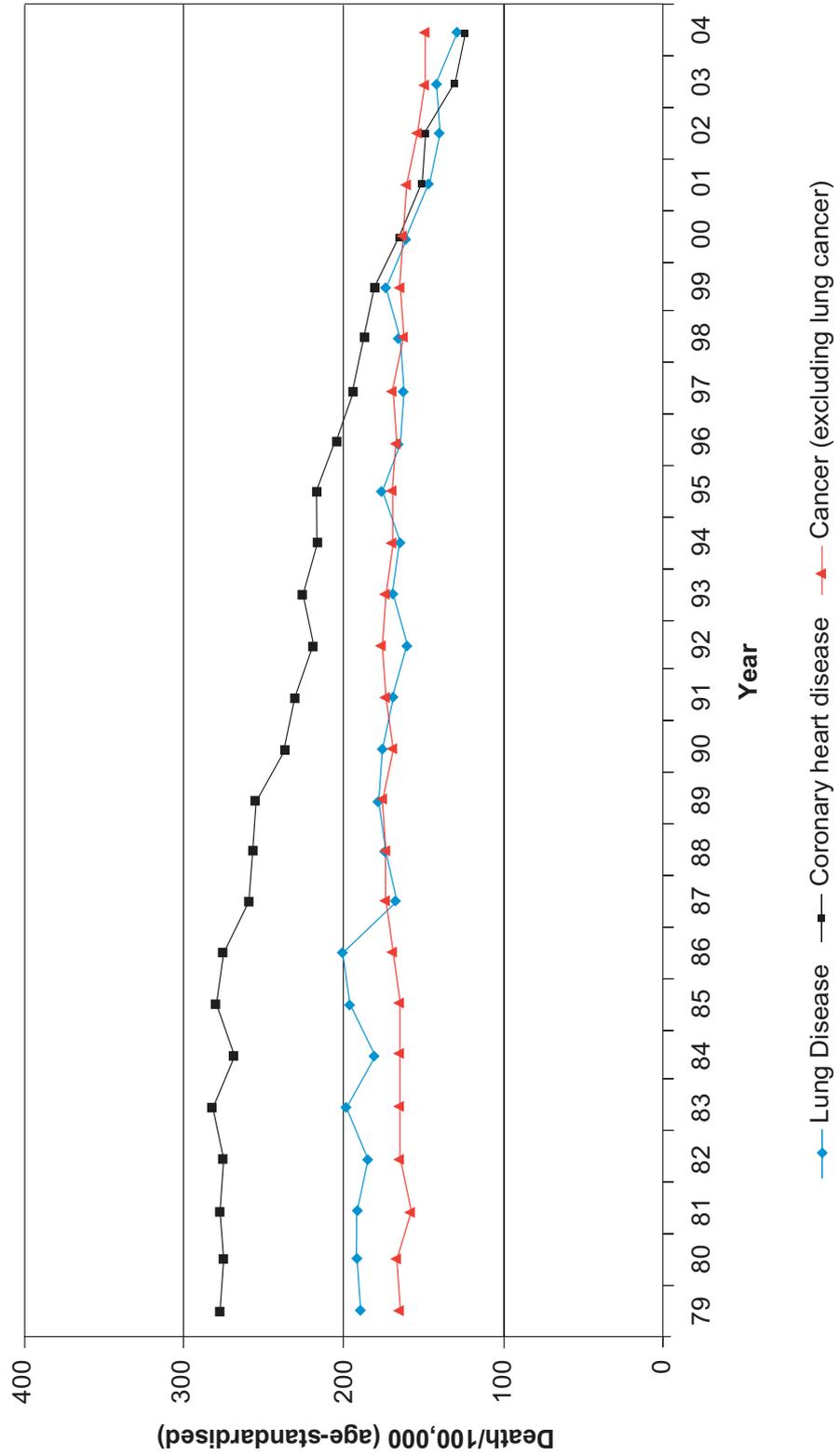


Table 1.5
Age-standardised death rates per 100,000 population from all respiratory disease, CHD and cancer
(excluding lung cancer), 1979-2004, Northern Ireland

MEN (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	282	324	261	271	262	242	289	289	258	270	286	276	254	237	255	226	225	238	218	215	240	229	175	159	169	163
Coronary heart disease	491	493	455	414	436	437	408	411	380	396	367	349	344	331	320	303	295	273	270	259	248	224	208	189	182	176
Cancer	176	176	161	161	174	180	170	172	177	178	180	181	175	188	187	186	187	186	177	192	173	166	175	172	170	165
WOMEN (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	133	140	122	138	124	117	136	134	122	141	156	145	128	125	144	122	140	138	133	131	153	147	101	104	107	101
Coronary heart disease	222	213	203	195	195	192	195	183	179	187	175	166	157	160	155	156	151	137	128	123	120	106	104	97	89	86
Cancer	153	159	154	155	149	150	151	151	155	152	153	153	154	147	151	149	139	140	141	136	138	140	133	125	132	126
ALL (1979-2004)	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
All respiratory disease	193	209	177	190	179	166	196	194	174	190	207	194	178	168	186	162	172	176	167	164	186	178	130	126	132	126
Coronary heart disease	336	330	311	288	297	297	287	281	265	276	256	244	232	233	226	219	212	195	189	181	175	155	149	137	129	125
Cancer	160	163	155	156	158	159	157	158	162	159	162	163	159	162	163	162	156	157	154	157	151	149	149	144	146	142

Source: World Health Organisation Mortality Database (8).

When comparing Republic of Ireland and Northern Ireland data, it is important to note that Northern Ireland data has moved to ICD 10 coding since 2001 whereas Republic of Ireland is still using ICD9.

Figure 1.5
Age-standardised death rates per 100,000 population from all respiratory disease, CHD and cancer (excluding lung cancer), 1979-2004, Northern Ireland

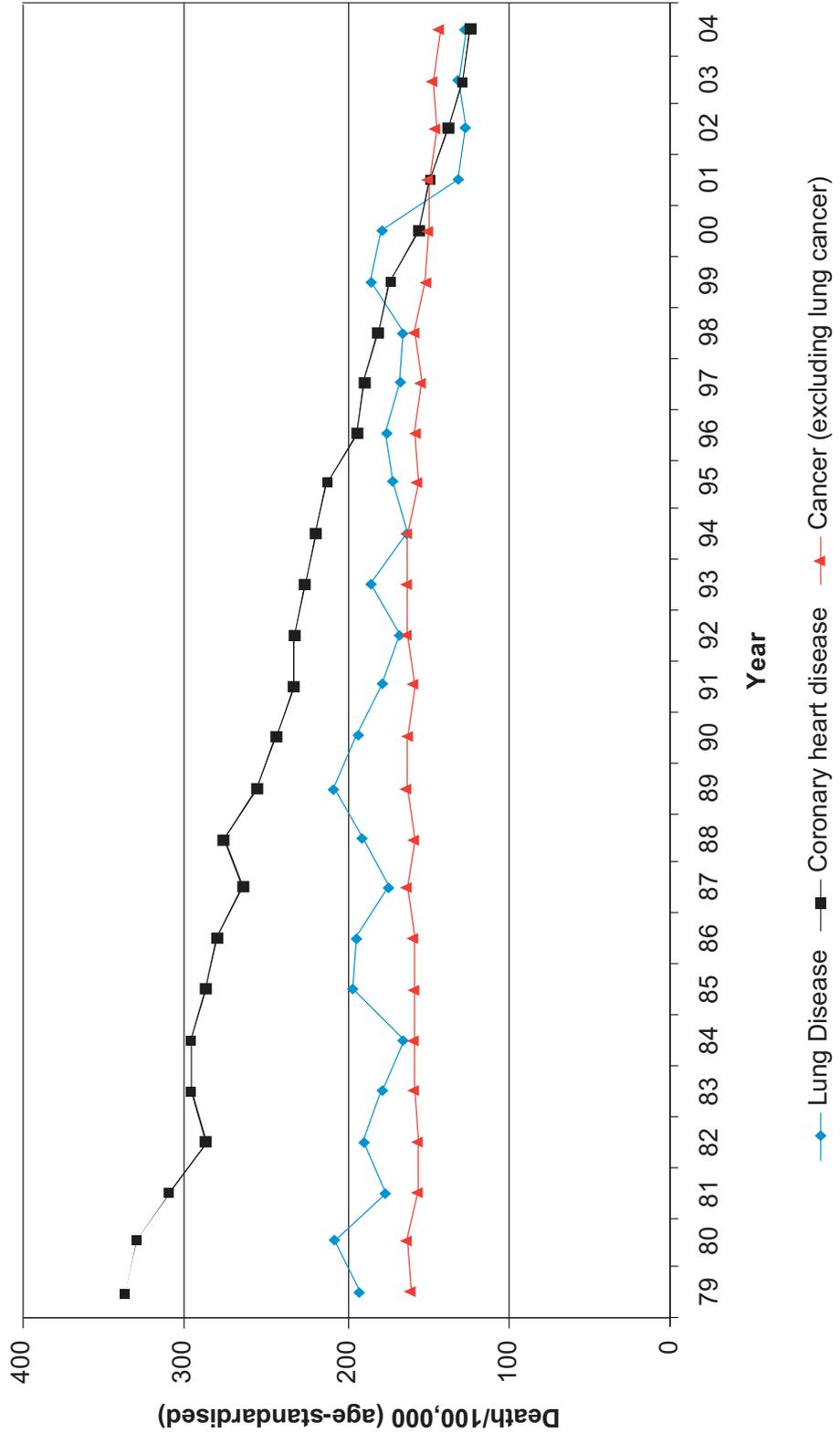


Table 1.6

Deaths due to occupational lung disease, 1992-2002, Republic of Ireland

Cause of Death	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Asbestosis (501)	1	1	–	–	3	1	4	1	3	1	2
Mesothelioma (163)	7	13	10	7	13	17	15	12	10	15	19
Pneumoconiosis (500, 502, 505)	6	1	4	–	3	3	4	1	2	2	1
Farmers Lung (495)	5	13	10	13	9	13	11	2	4	14	9
Total	19	28	24	20	28	34	34	16	19	32	31

Source: CSO 2007, Reports on Vital Statistics – 1992 – 2002 (4).

Table 1.7
Standardised mortality rates (per 100,000) by selected diseases of the respiratory system and social class, men of working age, 2002-2006, Republic of Ireland

Social Class Groupings	Tuberculosis (010-018, 137)	Cancer of the larynx and trachea, bronchus and lung (161-162)	Pneumonia (480-486)	Chronic Obstructive Pulmonary Disease (490-492, 496)	Asthma (493)	All Respiratory (460-519)
Upper	0.1	10.2	2.1	1.3	0.3	7.8
Middle	0.2	34.1	4.7	3.7	1.0	12.5
Lower	0.4	24.6	4.0	6.9	0.6	13.7
Unknown	1.5	53.6	17.4	8.6	0.9	36.1
Excess Annual Directly Standardised Mortality Rate in Lower Occupational Class compared to Higher	300%	141%	90%	430%	100%	76%

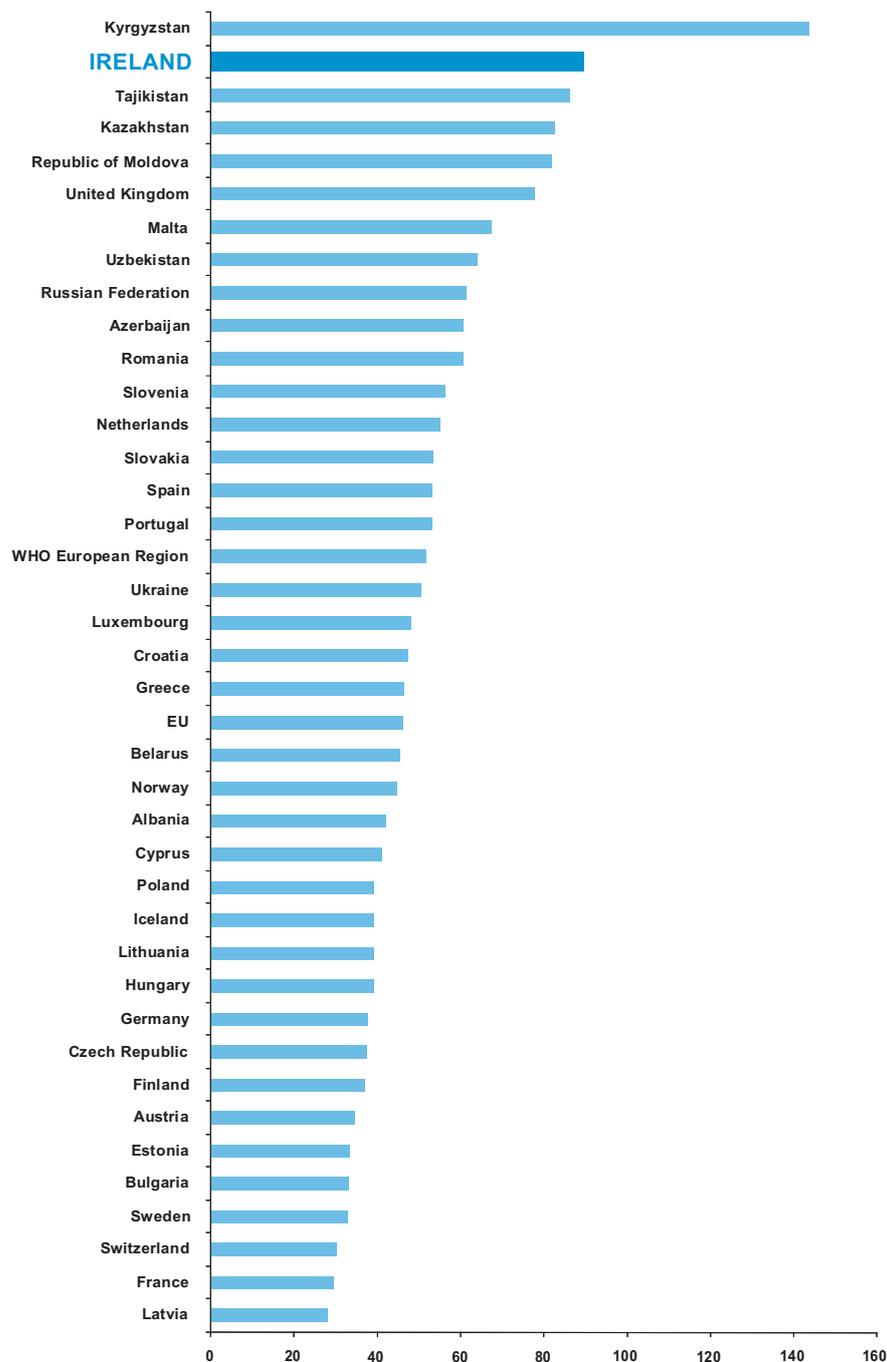
Source: Central Statistics Office

Data Analysis: Strategic Health Planning & Evaluation, Population Health Directorate, HSE. (36)

Table & Figure 1.8

Age-standardised death rates per 100,000 population from diseases of the respiratory system by sex, 2004, selected European countries

	Men	Women	All
Albania	54	32	42
Austria	52	25	35
Azerbaijan	75	49	61
Belarus	93	19	45
Bulgaria	48	21	33
Croatia	74	31	47
Cyprus	56	31	41
Czech Republic	55	26	37
Estonia	67	14	33
Finland	60	24	37
France	44	21	30
Germany	56	27	38
Greece	55	40	47
Hungary	59	26	39
Iceland	40	39	39
Ireland	112	74	89
Kazakhstan	142	47	82
Kyrgyzstan	201	104	144
Latvia	54	12	28
Lithuania	78	17	39
Luxembourg	79	32	48
Malta	98	47	67
Netherlands	80	41	55
Norway	59	36	45
Poland	65	24	39
Portugal	76	37	53
Republic of Moldova	133	48	82
Romania	87	40	61
Russian Federation	120	27	61
Slovakia	82	36	53
Slovenia	91	38	56
Spain	84	33	53
Sweden	41	27	33
Switzerland	44	21	30
Tajikistan	103	76	86
Ukraine	99	21	51
United Kingdom	95	67	78
Uzbekistan	77	54	64
WHO European Region	81	33	52
EU before May 2004	66	34	47



Age-standardised death rates/100,000 population

ICD codes 460-519 (9th revision), J00-J99 (10th revision), age-standardised using the European Standard Population.

Source: World Health Organisation (2007) European Health for All Database (3).

Table 1.9

Age-standardised death rates per 100,000 population from diseases of the respiratory system, 1970-2003, EU, Europe, UK and Ireland, by sex

Year	Men				Women				All			
	EU Av.	Europe Av.	UK	Ireland	EU	Europe	UK	Ireland	EU	Europe	UK	Ireland
1970	144	166	236	228	73	87	111	141	101	117	158	181
1971	130	155	202	173	63	79	91	109	90	107	132	138
1972	130	153	225	203	62	77	103	128	89	105	148	162
1973	136	159	217	202	65	81	102	132	93	110	145	164
1974	125	146	208	201	59	73	99	125	85	100	138	159
1975	131	158	206	180	61	79	98	110	88	108	137	142
1976	130	155	232	200	62	77	117	126	88	106	159	159
1977	118	147	200	181	54	72	99	100	78	99	136	136
1978	118	146	201	190	54	69	102	112	78	97	138	147
1979	109	142	200	184	49	66	103	106	72	93	138	139
1980	110	143	191	188	49	67	99	112	72	94	132	144
1981	109	135	186	191	49	63	98	106	72	89	129	142
1982	105	127	192	180	47	58	103	105	68	83	134	137
1983	109	130	185	188	49	59	99	114	71	85	129	146
1984	94	124	134	175	40	54	63	95	60	79	88	128
1985	101	129	145	195	43	57	71	107	64	82	97	143
1986	99	116	139	197	43	52	69	115	63	75	94	149
1987	87	108	123	154	37	47	62	96	55	69	83	119
1988	87	107	126	164	37	47	65	94	56	68	87	123
1989	89	105	135	172	39	46	73	97	57	67	95	128
1990	89	104	121	175	39	44	65	97	58	65	85	128
1991	85	98	119	160	37	41	67	101	55	62	85	124
1992	81	97	112	149	36	40	63	88	52	61	81	113
1993	89	109	151	159	42	45	93	95	60	69	114	120
1994	83	109	134	158	39	44	82	92	55	68	101	117
1995	86	108	145	170	41	44	91	103	58	68	111	129
1996	85	103	138	155	41	43	88	100	57	66	107	122
1997	83	99	140	160	41	42	92	99	57	63	110	123
1998	83	94	135	156	41	41	89	97	57	60	106	120
1999	87	97	143	167	45	42	98	110	60	63	115	133
2000	80	96	134	149	41	40	89	98	56	61	106	117
2001	69	86	98	135	34	35	66	88	48	54	78	106
2002	71	88	99	130	36	36	68	83	50	56	80	101
2003	73	89	104	129	38	37	74	83	52	57	86	101

ICD codes 9th revision 460-519 and 10th revision J00-J99

Source: World Health Organisation (2007) European Health for All Database (3).

Figure 1.9

Age-standardised death rates per 100,000 population from diseases of the respiratory system, 1970-2003, EU, Europe and Ireland

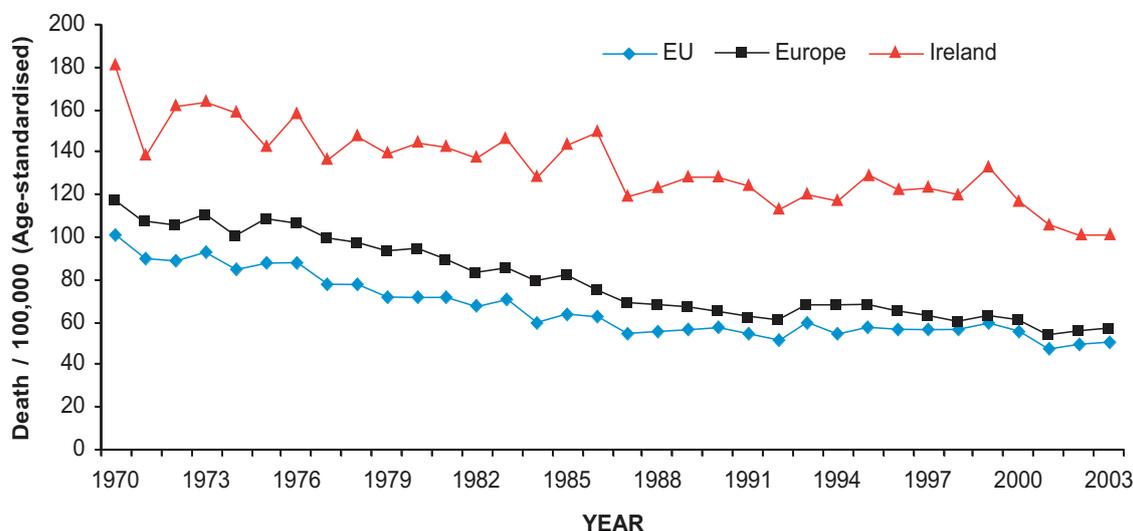
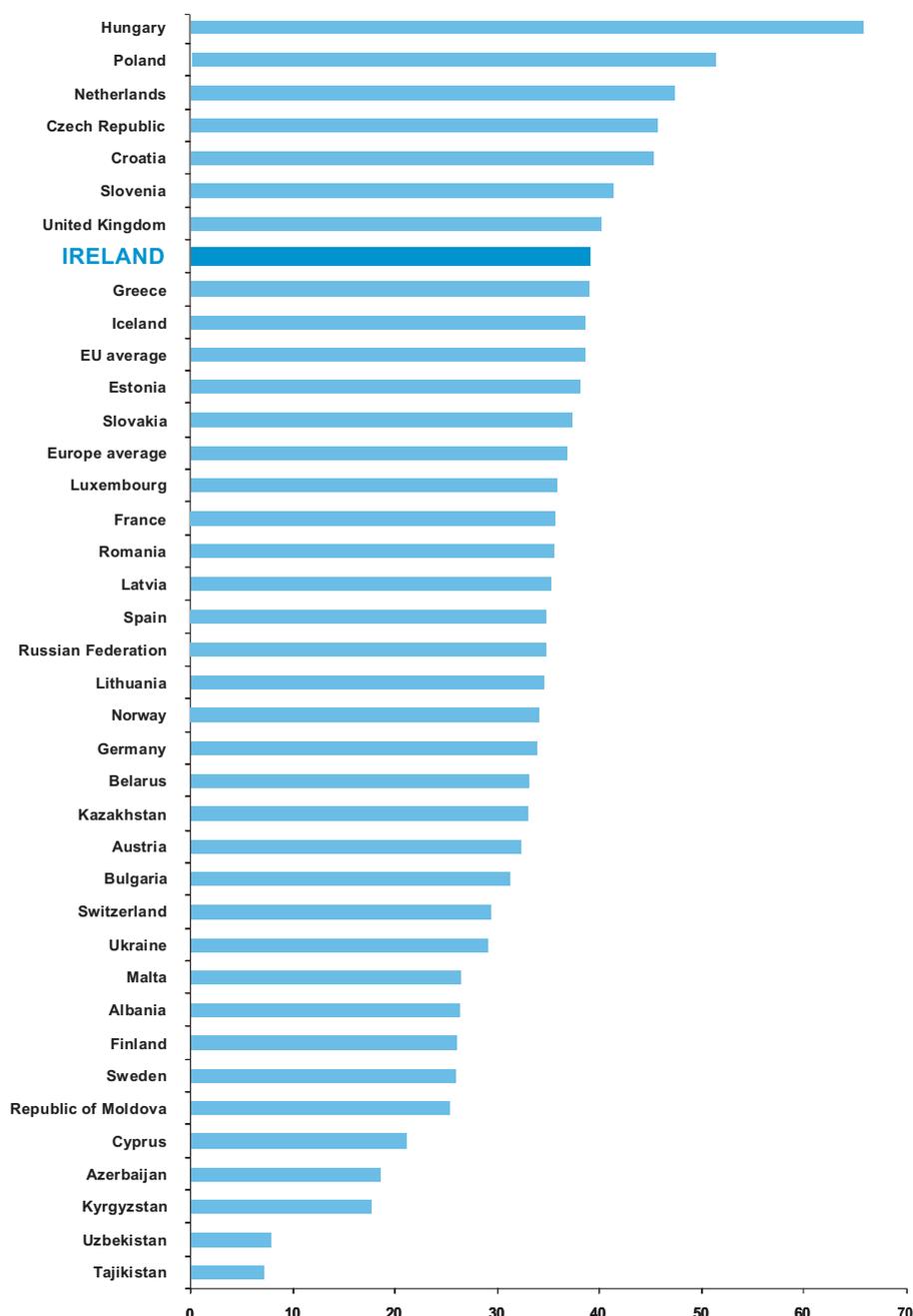


Table & Figure 1.10

Age-standardised death rates per 100,000 population from lung cancer by sex, 2004, selected European countries

	Men	Women	All
Albania	43	12	26
Austria	51	18	32
Azerbaijan	34	6	19
Belarus	78	5	33
Bulgaria	57	10	31
Croatia	86	16	45
Cyprus	40	5	21
Czech Republic	82	19	46
Estonia	80	13	38
Finland	46	12	26
France	63	13	36
Germany	56	17	34
Greece	72	11	39
Hungary	114	33	66
Iceland	37	41	39
Ireland	53	28	39
Kazakhstan	69	9	33
Kyrgyzstan	31	7	18
Latvia	80	8	35
Lithuania	76	8	35
Luxembourg	63	15	36
Malta	52	6	26
Netherlands	74	28	47
Norway	46	25	34
Poland	96	19	51
Republic of Moldova	48	9	25
Romania	65	11	36
Russian Federation	78	8	35
Slovakia	73	12	37
Slovenia	76	17	41
Spain	67	8	35
Sweden	31	23	26
Switzerland	45	17	29
Tajikistan	10	4	7
Ukraine	63	7	29
United Kingdom	54	30	40
Uzbekistan	13	3	8
WHO European average	65	14	35
EU before May 2004	62	17	37



Age-standardised death rates/100,000 population

Source: World Health Organisation (2007)

European Health for All Database (3).

MORBIDITY

Self-reported respiratory illness in adults

The recent Quarterly National Household Survey (QNHS) – Disability Update, first quarter, 2004 (9) established that respiratory disorders continue to be the third most frequently reported long-term illness group after cardiovascular and musculoskeletal diseases (Table 2.1). Respiratory disorders remain the most common cause of long-standing problems in the 15-35 year age group. This report shows that almost 11% (298,300) of all persons aged 15 to 64 had a longstanding (greater than 6 months) health problem, a figure which has not changed in recent years (9, 10, 11).

The QNHS on Health published in 2002 (10) provided information by type of respiratory condition (Table 2.2). This showed that asthma was the second most prevalent single condition reported in proportional terms with approximately 5% of the 18+ aged population indicating that they have at one point or another suffered from the condition. When combined with chronic bronchitis 6.4% of adults report chronic airways disease. In the 18-44 year age group, respiratory disease is the most commonly reported long-term illness, with asthma more common in this group than any other long-term condition. While a detailed socio-economic analysis is not given in this survey, the data under economic status do confirm a general trend for better health among those in employment although this difference is less pronounced for asthma than for many other diseases.

Another QNHS (Disability in the Labour Force, Second Quarter, 2002) found that of the overall 41,500 reporting chest and breathing problems that year, 10,900 reported problems since birth and a further 16,300 problems of greater than 10 years duration and 6,000 problems lasting 5-10 years (11). The vast majority of this group therefore have morbidity measured in decade's duration (Table 2.3).

Respiratory Illness and the Labour Force

Among those in employment with a long-term illness or disability (110,800) in 2004, 18,600 (17%) reported chest or breathing problems, second in frequency only to musculoskeletal disorders. A striking and unique feature was that chest or breathing problems were more common in younger persons (Table 2.4), whereas many other disorders increased steadily with age.

This survey also showed that of those in employment with health problems, chest or breathing problems accounted for a variable percentage depending on employment status, NACE economic sector and occupational groups, accounting for an overall average of 17% of disorders but varying from 10% to 29% in particular groups (Table 2.5).

The QNHS 2002 addressed issues concerning the interaction between health problems and work. Of all persons in this cohort and/or of those in employment with chest or breathing problems only a minority (about 5%) regarded their problem as work related (Table 2.6). However larger numbers reported that their problem would restrict the kind or amount of work they do or could do. Of the total population group, 18,300 had some restriction of the kind of work and 15,600 the amount of work they could do (these groups are not mutually exclusive). Similarly, of those in employment 5,800 had restrictions in the kind and 4,400 restrictions in the amount of work they could do (Table 2.6). Therefore respiratory morbidity has a large impact on economic productivity in the 15-64 year age group which comprises the effective national labour force.

More recent figures for work related illnesses (12) show that approximately 4,300 workers suffered from occupational lung diseases or injury in 2003, making it the third most common type of work related illness (Table 2.7).

Quality of Life – The Living in Ireland Survey

In 2001, 6,518 individuals were surveyed by the ESRI as part of the Living in Ireland Survey (LIIS) (13). Morbidity data from this survey is broadly consistent with that outlined above with respiratory disease the third most frequently reported illness after circulatory and musculoskeletal disorders. However use of the broader definition of ‘health problems’ in the LIIS compared to ‘long term illness/disability’ as used by CSO (9), may account for the higher percentage, with 1,347 (20%), reporting illness in this survey. Of this group, 195 (14.5%) reported respiratory disease as their first, second or third illness, with the majority 164 (12.2%) reporting it as their principal illness. Respiratory disease was slightly more prevalent in women who accounted for 52% of the total. The LIIS, like the CSO data, also reveals a high prevalence of the disease among young people with similar numbers reporting the disease in the 20-39 age group as in the 50-69 age group.

Quality of life data from this survey reveals the following facts. All of those with respiratory disease described their condition as chronic and 15% rated their health as bad or very bad. The mean length of time that respondents reported having the disease was 16 years. Sixty six percent reported being either ‘severely’ or ‘to some extent’ hampered in their daily life and 18% reported having a mobility problem. Twenty seven percent smoke daily, 2% smoke occasionally and 71% never smoked. The 137 people who said they don’t currently smoke were asked did they ever smoke and of these: 29% said they smoked daily, 7% smoked occasionally and 63% never smoked. The survey also provides data on use of health services. This is analysed further below.

Self-reported respiratory illness in children

The International Study on Asthma and Allergies in Children (ISAAC) has identified that the prevalence of asthma in Ireland remains one of the highest in the world (14). From a survey carried out in 2002-3, Manning *et al* reported prevalence values for asthma and wheeze among children aged 13 -14 years of 21.6% and 26.7% respectively compared to values of 15.2% and 29.0% respectively reported in 1995. This represents a 42% relative increase in Irish childhood asthma diagnosis from the period 1995 to 2002-3 and a relative drop in reported wheeze by over 10% in the same period.

International comparisons of self-reported respiratory illness

In a 16 country survey carried out for the European Community Respiratory Health Survey (ECRHS) Study Group relating to chronic bronchitis and smoking habits in those aged 20 - 44 years, Ireland was second only to Spain in terms of the prevalence of chronic bronchitis (approximately 8% versus a median prevalence of 2.6% for all centres) (15).

Among those surveyed approximately 45% of young Irish adults were current smokers compared to a median value of 40%. Ireland was one of only three countries where the prevalence of current smokers was higher in females than in males (46.5% v 44.2%). Not surprisingly current smoking was the major risk factor for chronic bronchitis. Spain and Ireland headed the prevalence list for both current smoking status and chronic bronchitis. Given the prevalence of smoking among young adults, it does not seem likely that mortality from COPD will fall dramatically in the medium term and therefore Ireland is likely to continue to have one of the highest mortality rates from this disease, a fact highlighted as long ago as 1989 (16).

Results from another survey carried out for the European Community Respiratory Health Survey (ECRHS) Study Group into chronic obstructive pulmonary disease in young adults (20-44 years) support evidence that COPD develops earlier than is usually believed. Of the 16 countries surveyed, Ireland was amongst five countries where the prevalence of moderate COPD in young adults was highest at 5% or more (17).

Visits to General Practitioners

Among the 6,500 respondents to the health segment of the 2001 Living in Ireland Survey, 73% (4,754) attended a GP at least once in the preceding 12 months compared to 92% of those with a respiratory illness (13). Data on frequency of visits is outlined in table 2.8.

Certified incapacity

In total 530,277 work days were lost by 36,098 individuals as revealed by Illness Claims (due to respiratory illnesses) made to the Department of Social, Community and Family Affairs in 2004 (18). This figure relates to short-term absence from work and not to long-term invalidity. To put this in perspective, this equates with the total of 485,985 working days lost due to industrial disputes over the five year period 1999-2003 inclusive. Figures for benefit recipients and working days lost due to respiratory illness from 2002 to 2005 are outlined in Table 2.9.

With regard to long-term Invalidity Pension, the Department does not have data specifying the particular disease or disorder for Pension holders and it is therefore impossible to assess the volume attributable to lung disease.

Prevalence of respiratory symptoms and asthma

There is no comprehensive state sponsored survey of the prevalence of respiratory symptoms and doctor-diagnosed asthma in Ireland. Epidemiological studies have revealed that 470,000 people in Ireland have asthma – the fourth highest prevalence worldwide after Australia, New Zealand and the United Kingdom. (19).

A survey carried out in this area in 2002 revealed that in 3,278 households surveyed there were 400 individuals (the study patient group) from all age groups with physician diagnosed asthma and past year medication or asthma attacks giving a disease incidence of 12.2% (20). They recorded a further 18% with diagnosed asthma but no attack/medication in the past 12 months and who were not included in the study group. Of those with active asthma (400), up to 19% experience sleep disturbance at least once a week. Nearly a third (29%) have missed school or work in the past year because of their asthma, with adults on average missing 12 days work and children missing 10 days school. Of the 400 study group patients, 30% had visited the emergency department at hospital or had an emergency visit to the doctor and 7% had been hospitalised during the previous year. Over 75% of patients had never had a lung function test.

Socio-economic factors and morbidity

The effect of social class on the prevalence of respiratory illness is included in a study by Lyons *et al* (21). This study of 2,703 GP attendees in the 40-69 year old age group reports a crude prevalence of 4.8% for asthma and 6.2% for chronic bronchitis. The prevalence of asthma was not related to social class.

The relative rate (95% confidence interval) of chronic bronchitis in persons from social classes 5 and 6 (lowest socio-economic groups) was 3.89 (2.56-5.90) times that in persons from social classes 1 and 2 (highest socio-economic groups).

Research carried out by the Office of Tobacco Control (OTC) on current trends in cigarette smoking shows the highest prevalence of smoking in the skilled working class, C2. There is further evidence of a link between social class and the risk of developing respiratory disease in another OTC study, which shows that children from lower income backgrounds start smoking at a younger age and smoke a higher number of cigarettes than children from higher income backgrounds (22).

Incidence of lung cancer

Lung cancer is the third most common type of cancer in both sexes in Ireland. Over the period 1994-2005, there was an average of 1,646 cases (1,035 in men and 611 in women) of lung cancer per year in Ireland (23). This represents 5.4% of all cancers in women and 10% of all cancers in men (Table 2.10). If non melanoma skin cancer is excluded from all cancers, this increases to 11% for women and 14.5% for men.

The incidence of lung cancer varies by region (expressed by Health Board Area) within Ireland with the highest rate by far in the ERHA area corresponding largely to the greater Dublin area. The ERHA rate is about 23% higher for men and 33% higher for women than the national average (24). There are also differences when compared to neighbouring countries (Table 2.11). Survival rates for lung cancer are low. In both sexes the one-year survival is 23.7%, three year survival is 10.5% and five-year survival is 8.6% (Table 2.12) (25). These figures are considerably lower than those for the other common major cancers.

The ten years between 1994 and 2004 have seen a steady increase in the incidence of lung cancer in women while incidence of lung cancer in men has remained stable (26) (Table and figure 2.13).

Cystic Fibrosis

The Cystic Fibrosis Registry of Ireland Annual Report for 2004 reports that there are 626 children attending 11 paediatric units and 517 adults attending 8 Respiratory Medicine centres in Ireland (27). Very recent data in its 2006 Report identifies 5 deaths due to the disease in 2004.

Incidence of tuberculosis

In 2004, 432 cases of tuberculosis were recorded by the Health Protection Surveillance Centre in Ireland. Although the incidence of tuberculosis per 100,000 declined slowly during the 1990s and has remained largely unchanged since 2000, there has been an 18% increase in cases between 2001 and 2005 due to population increase (Table and Figure 2.14) (28). Almost 72% of cases have pulmonary disease alone or combined with another site and pleural disease is the single largest extrapulmonary site. Thus, the vast bulk of cases are respiratory (Table 2.15).

Table 2.1

Persons aged 15-64 that have a long standing health problem classified by type of longstanding health problem, sex and age, 2004, Republic of Ireland

Condition	Values in thousands							
	Total Population	Male	Female	Age groups				
				15-24	25-35	35-44	45-54	55-64
Musculoskeletal (including arthritis & rheumatism)	88.2	44.6	43.6	4	9.3	17	25.3	32.6
• Arms or hands	18.6	7.9	10.7	0.7	1.7	2.9	4.9	8.3
• Back or neck	43	22.1	20.9	2.1	4.6	10.5	14.1	11.8
• Legs or feet	26.6	14.6	12.0	1.2	3.0	3.6	6.3	12.5
Chest or breathing (including asthma & bronchitis)	41.1	21.7	19.4	8.6	7.9	5.4	8.5	10.6
Diabetes	14.3	8.6	5.7	1.2	1.0	2.7	4.8	4.6
Epilepsy	6.6	3.7	2.9	1.0	2.2	1.5	1.2	0.8
Heart blood pressure/circulation	46.3	27.2	19.1	0.4	2.2	4.9	12.6	26.2
Stomach, liver, kidney or digestive	14.8	6.7	8.1	2.2	2.1	3.8	3.7	3.0
Skin conditions (including disfigurement & allergies)	3.9	2.1	1.8	0.4	0.7	1.0	1.2	0.6
Mental, nervous or emotional	30.5	16.3	14.2	3	4.6	8.5	8.2	6.2
Total with any disorder	298.3	155.8	142.5	26.1	36.9	53.1	81.8	100.4
Total Population	2742.2	1376.8	1365.4	643.3	647.4	579.9	494.4	377.3

Source: Central Statistics Office (2007) Quarterly National Household Survey: Disability Update, Q1, 2004 (9).

Table 2.2

Persons aged 18 and over, classified by whether they have, or have ever, suffered from selected conditions, Republic of Ireland

Condition	Values as percentage of population								
	Total Population	Male	Female	Age groups					
				18-24	25-34	35-44	45-54	55-64	65+
Angina	2.3	2.6	2.1	0.3	*	0.4	1.5	4.5	9.2
Asthma	5.0	4.7	5.3	6.0	5.7	4.0	4.3	4.9	5.0
Arthritis (osteo) of hip	3.0	2.3	3.8	*	*	0.8	2.2	5.2	12.1
Arthritis (rheumatoid)	3.8	2.9	4.8	*	0.5	1.2	2.9	7.4	14.0
Cancer (skin)	0.3	0.3	0.3	*	*	*	0.3	0.5	1.0
Cancer (other)	1.0	0.7	1.2	*	0.3	0.3	1.3	1.9	2.5
Chronic bronchitis	1.4	1.4	1.4	0.5	0.6	0.9	1.3	2.3	3.4
Diabetes	1.5	1.6	1.4	0.3	0.4	0.7	1.4	3.0	4.5
Gallstones	1.3	0.6	2.0	*	0.6	0.8	1.6	2.5	2.8
Heart attack	1.5	2.1	0.9	*	*	0.4	1.2	2.9	5.4
Hypertension	6.8	5.3	8.1	0.5	1.0	2.4	6.1	13.9	22.1
Kidney stones	0.6	0.7	0.6	*	0.4	0.7	0.8	1.0	1.1
Osteoporosis	0.9	*	1.6	*	*	*	0.7	1.7	3.7
Stroke	0.6	0.7	0.6	*	*	*	0.5	1.0	2.8
Ulcer (leg) requiring dressing	0.5	0.3	0.7	*	*	*	*	0.7	2.3
Ulcer (gastric/peptic/duodenal)	1.7	1.9	1.5	0.6	1.3	1.6	2.0	2.6	2.5
Underactive thyroid	0.9	*	1.6	*	0.3	0.7	1.1	1.6	2.1
Other	9.2	8.9	9.5	4.6	5.6	7.7	10.4	13.3	16.6
One or more health conditions	30.4	27.8	33.0	12.8	15.6	19.6	30.7	48.3	69.5

*Sample occurrence too small for estimation.

Source: Central Statistics Office (2002) Quarterly National Household Survey: Health, Third Quarter 2001 (10).

Table 2.3

All persons and persons in employment aged 15-64, that have chest or breathing problem, classified by the cause of the condition, 2002, Republic of Ireland

	Values in thousands				Total
	Born with condition	Work Related	Non-work Related	Don't Know/ Not Stated	
All Persons	12.0	2.3	10.5	16.0	41.5
In Employment	6.6	1.1	5.4	7.5	21.0

Source: Central Statistics Office (2002) Quarterly National Household Survey: Disability in the Labour Force, Second Quarter 2002 (11).

Table 2.4

Self-reported respiratory illness by sex, economic status, and age in persons aged 15-64, 2004, Republic of Ireland

Total	Male	Female	Values in thousands					In Employment	Unemployed	Not Economically Active
			15-24	25-34	35-44	45-54	55-64			
41.1	21.7	19.4	8.6	7.9	5.4	8.5	10.6	18.6	2.1	20.4

Source: Central Statistics Office (2007) Quarterly National Household Survey: Disability Update Q1, 2004 (9).

Table 2.5

Persons aged 15-64 in employment, that have longstanding respiratory problem or disability, classified by employment status, NACE economic sector, and occupation, 2004, Republic of Ireland

	Total employed with any health problem (thousands)	Chest or Breathing problem (thousands)	Percentage
Total	110.8	18.6	17%
Employment Status			
Self-employed (with paid employees)	5.0	0.5	10%
Self-employed (with no paid employees)	15.1	2.0	13%
Employee (including schemes)	89.5	15.9	18%
Assisting relatives	1.2	*	*
NACE Economic Sector			
A-B Agriculture, Forestry, Fishing	8.4	1.0	12%
C-E Other Production Industries	14.2	1.8	13%
F Construction	10.8	2.6	24%
G Wholesale/Retail	13.3	3.1	23%
H Hotels/Restaurants	6.5	1.8	28%
I Transport/Storage/Communications	8.4	1.0	12%
J-K Financial/Other Services	14.0	3.0	21%
L Public Administration/Defence	5.4	0.6	11%
M Education	9.3	1.1	12%
N Health	12.8	1.8	14%
O Other	7.6	0.9	12%
Occupations			
1. Managers/Administrators	20.5	3.2	16%
2. Professional	12.0	2.3	19%
3. Associate Professional/Technical	10.6	1.4	13%
4. Clerical/Secretarial	11.2	1.8	16%
5. Craft and Related	13.5	2.9	21%
6. Personal and Protective Service	12.3	1.8	15%
7. Sales	7.3	2.1	29%
8. Plant and Machine Operatives	9.7	1.0	10%
9. Other	13.8	2.2	16%

*Sample occurrence too small for estimation.

Source: Central Statistics Office (2007) Quarterly National Household Survey: Disability Update Q1, 2004 (9).

Table 2.6

All persons and persons in employment aged 15-64, that have chest or breathing problem, classified by whether condition restricts them on kind and amount of work they do or could do, 2002, Republic of Ireland

	Values in thousands								Total
	The kind of work they do or could do				The amount of work they do or could do				
	Yes considerably	Yes to some extent	No	Not Stated	Yes considerably	Yes to some extent	No	Not Stated	
All persons in state with any disorder	120.7	58.1	90.9	1.3	113.3	57.9	98.5	1.3	271.0
With Chest and Breathing Problem	8.8	9.5	23.7	*	7.6	8.0	25.9	*	41.5
Persons in employment in state with any disorder	20.2	30.0	58.1	0.3	16.8	28.6	63.0	0.3	108.6
With Chest and Breathing Problem	1.4	4.4	15.1	*	1.0	3.4	16.6	*	21.0

*Sample occurrence too small for estimation

Source: Central Statistics Office (2002) Quarterly National Household Survey: Disability in the Labour Force, Second Quarter 2002 (11).

Table 2.7

Persons in employment who suffered an illness due to work by type of illness and gender, 2003

Type of Illness	Male	Rate ¹	000s		Total	Rate ¹
			Female	Rate ¹		
Bone, joint or muscle	16.5	1.5	6.3	0.8	22.8	1.2
Breathing, lungs	3.2	0.3	1.1	*	4.3	*
Skin	1.0	*	*	*	1.2	*
Hearing problem	0.4	*	*	*	0.4	*
Stress etc.	3.6	0.3	3.6	0.5	7.2	0.4
Headache, eyestrain	1.4	*	0.7	*	2.1	*
Heart etc.	1.0	*	0.5	*	1.5	*
Infectious disease	1.1	*	0.6	*	1.7	*
Other	2.4	*	1.8	*	4.1	*
Not applicable	0.7	*	0.4	*	1.1	*
Total	31.2	2.9	15.1	2.0	46.3	2.5

¹Rates are calculated per hundred in employment. Note: Data may be subject to sampling or other survey errors, which are greater in respect of smaller values or estimates of change. *Sample occurrence too small for estimation

Source: Central Statistics Office (2007) Quarterly National Household Survey, Quarter 1, 2004 (12).

Table 2.8

Frequency of GP visits by patients with respiratory illness, 2001, Republic of Ireland

Number of GP Visits	Respiratory Disease as Principal Illness		Respiratory Disease as 2nd/3rd Illness		Total with Respiratory Disease		Total Surveyed	
	Patients	Total visits	Patients	Total visits	Patients	Total visits	Respondents	Total visits
0	15 (9%)	0	1 (3%)	0	16 (8%)	0	1764 (27%)	0
1-4	68 (42%)	182	9 (29%)	34	77 (40%)	216	3304 (51%)	7,171
5-9	35 (21.5%)	223	2 (7%)	13	37 (19%)	236	722 (11%)	4,412
10-14	35 (21.5%)	417	12 (39%)	140	47 (24%)	557	534 (8%)	6,186
15+	10 (6%)	663	7 (23%)	157	17 (9%)	820	176 (3%)	6,033
Total	163	1485	31	344	194	1,829	6,500	23,802

Source: ESRI, 2007, Living in Ireland Survey, 2001 (13).

Table 2.9

Recipients of illness benefit suffering from respiratory diseases and cancer, 2004, Republic of Ireland

Incapacity	2004	
	Recipients	Working Days Lost
Asthma	869	40,161
Chronic Respiratory Infection	827	27,820
Influenza	4,982	41,928
Tuberculosis	13	795
Chest Injury / Pain	1,850	47,400
Sarcoidosis	45	3,119
Pneumonia	379	15,056
Acute Respiratory Infection	18,193	222,721
Emphysema / COPD	51	4,013
Lung / Pulmonary Infection	137	6,333
Pleurisy	174	4,024
URTI / LRTI	2,752	28,733
Viral Infection	5,790	84,423
Cold	6	21
Lung Cancer *	30	3,730
Total	36,098	530,277

Source: The Department of Social Community and Family Affairs, 2007. (18)

*As the data supplied by the Dept of Social Welfare did not include a figure for lung cancer (total cancer figures only), the figures above for lung cancer are an estimate based on annual percentage data from the National Cancer Registry.

Table 2.10

Incidence rates in the major cancers by sex, 1994-2005, Republic of Ireland

	Number of Cases					
	2005			Average 1994 - 2005		
	Female	Male	Both	Female	Male	Both
All Cancers	13,901	12,875	26,776	11,341	10,706	22,046
All invasive cancers except NMS	8,001	8,578	16,579	6,624	7,128	13,752
Non-melanoma skin	2,860	3,336	6,196	2,510	2,888	5,398
Prostate	–	2,407	2,407	–	1,687	1,687
Breast	2,352	27	2,379	1,895	14	1,910
Colorectal	936	1,248	2,184	826	1,073	1,899
Lung	750	1,092	1,842	611	1,035	1,646
Unknown site	444	362	806	344	330	674
Lymphoma	292	350	642	254	294	548
Melanoma of the Skin	360	238	598	279	176	454
Bladder	159	345	504	135	331	466
Stomach	173	296	469	182	293	475
Pancreas	200	186	386	181	180	361
Kidney	154	221	375	111	191	302
Leukaemia	147	224	371	160	233	393
Ovary	367	–	367	348	–	348
Oesophagus	131	222	353	122	193	316
Brain and ONS	138	207	345	127	169	296
Corpus uteri	297	–	297	243	–	243
Cervix uteri	253	–	253	191	–	191

Source: National Cancer Registry Ireland: Cancer in Ireland 1994-2005: a summary (23).

Table 2.11

Lung cancer age-standardised incidence by sex and region, 1999-2003

	Age Standardised Incidence Rate per 100,000
Men	
Ireland 1999-2003	61.99
Eastern Regional Health Authority	76.50
MHB	57.27
Mid-Western Health Board	55.80
North-Eastern Health Board	60.79
North-Western Health Board	56.83
South-Eastern Health Board	56.53
Southern Health Board	56.32
Western Health Board	50.81
Northern Ireland (1993 – 1999)	74.3
England (1991 – 1999)	79.0
Wales (1991 – 1999)	83.1
Scotland (1991 – 1999)	108.2
Women	
Ireland 1999-2003	30.87
Eastern Regional Health Authority	41.03
MHB	25.49
Mid-Western Health Board	25.56
North-Eastern Health Board	27.64
North-Western Health Board	28.00
South-Eastern Health Board	25.03
Southern Health Board	27.85
Western Health Board	20.84
Northern Ireland (1993 – 1999)	32.7
England (1991 – 1999)	33.4
Wales (1991 – 1999)	34.4
Scotland (1991 – 1999)	51.8

Source: National Cancer Registry Ireland (2007) (24).

Table 2.12

Relative survival rates in four of the major cancers by sex, 1994-2001, Republic of Ireland

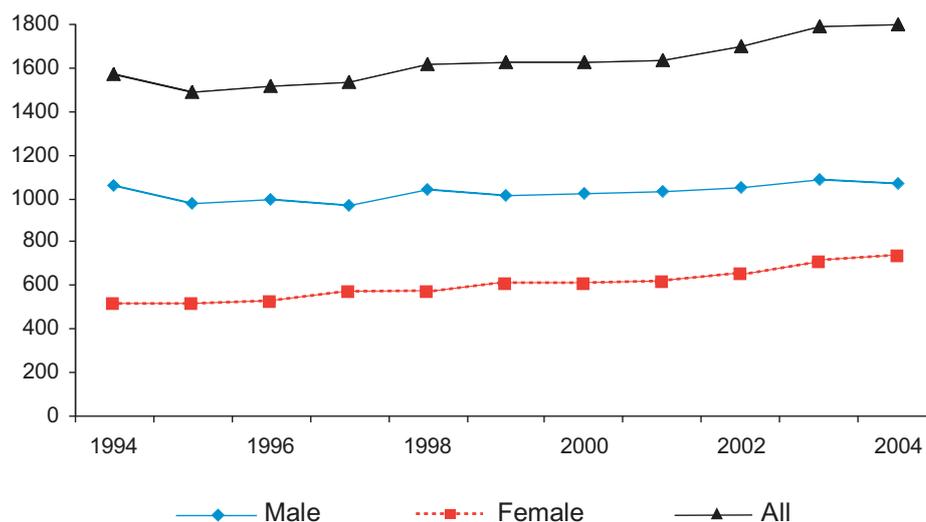
	1-yr Survival	3-yr survival	5-yr survival
Breast Cancer	93.1%	82.5%	75.4%
Colorectal Cancer	70.2%	54.7%	49.2%
Lung Cancer	23.7%	10.5%	8.6%
Prostate Cancer	89.1%	76.2%	69.5%

Source: National Cancer Registry Ireland: Patterns of care and survival from cancer in Ireland 1994 to 2001 (25).

Table & Figure 2.13

Incidence of lung cancer by sex, 1994-2004, Republic of Ireland

	Male	Female	All
1994	1,063	510	1,573
1995	977	508	1,485
1996	997	520	1,517
1997	972	567	1,539
1998	1,046	570	1,616
1999	1,017	607	1,624
2000	1,023	604	1,627
2001	1,028	611	1,639
2002	1,047	650	1,697
2003	1,091	704	1,795
2004	1,068	732	1,800

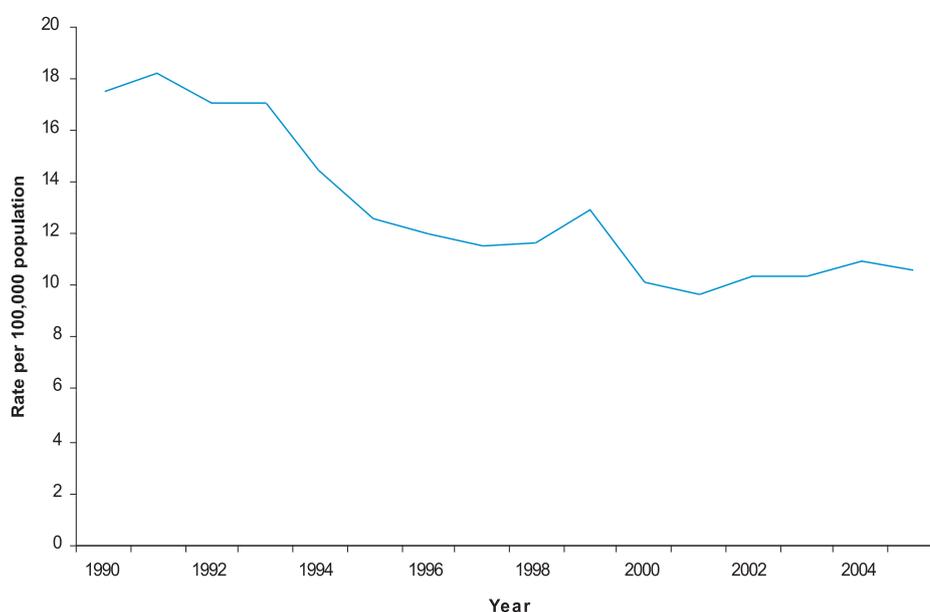


Source: National Cancer Registry Ireland online database 2007 (26).

Table & Figure 2.14

Incidence of tuberculosis (all cases), 1990-2005, Republic of Ireland

Year	Notifications	Rate per 100,000
1990	613	17.5
1991	640	18.2
1992	604	17.1
1993	598	17.0
1994	524	14.5
1995	458	12.6
1996	434	12.0
1997	416	11.5
1998	424	11.7
1999	469	12.9
2000	395	10.1
2001	381	9.7
2002	408	10.4
2003	407	10.4
2004	432	11.0
2005	450	10.6



Source: Health Protection Surveillance Centre (2007): Reports on the epidemiology of tuberculosis in Ireland 2004, 2005 (29).

Table 2.15

Diagnostic category of tuberculosis by organ, 2001-2004, Republic of Ireland

Site	2001	2002	2003	2004
Pulmonary	253 (66.4%)	268 (65.7%)	265 (65.1%)	274 (63.4%)
Pulmonary + Extrapulmonary	35 (9.2%)	37 (9.0%)	34 (8.4%)	36 (8.3%)
Extrapulmonary	92 (24.1%)	95 (23.3%)	105 (25.8%)	121 (28%)
Unknown	1 (0.3%)	8 (2.0%)	3 (0.7%)	1 (0.2%)
Total	381	408	407	432
Extrapulmonary				
Pleural	48	44	49	41
Lymph – Intrathoracic	5	6	7	8
Lymph – Extrathoracic	17	38	31	33
Spine	6	2	3	5
Bone	4	3	2	6
Meningeal	2	6	8	6
CNS other than meningitis	0	1	2	0
Genito-urinary	11	11	11	9
Disseminated	5	2	6	10
Peritoneal	6	4	4	5
Other	10	13	13	30
Site not reported	13	2	3	4
Total	127	132	139	157

Source: Health Protection Surveillance Centre (2007): Reports on the epidemiology of tuberculosis in Ireland 2001, 2002, 2003, 2004 (28).

The data is as given in the reports: in some cases, incomplete data on the site(s) and/or the method of presentation does not allow totals to match exactly when comparing numbers for extra-pulmonary disease.

TREATMENT

Consultations in General Practice

Reference has been made in the previous section to the lack of morbidity data in general practice and for similar reasons there is no substantial database giving comprehensive data on GP consultations in general or respiratory consultations in particular (13). The Living in Ireland Survey provides data for GP visits by people with respiratory illness but this does not take into account GP visits for respiratory conditions that are not part of a long term illness. The Primary Care Reimbursement Service (PCRS) (formerly General Medical Services Payments Board) Report (2006) gives one substantive figure relevant to respiratory medicine, namely that 50,496 emergency nebulizer treatments were provided for acute asthma attacks (30). These attract a special item of service fee for GPs. Our global estimate that 14.5% of all GP consultations relate to respiratory disease is in line with UK data. (31)

Inpatient hospital treatment

There were 68,233 inpatient cases with a principal diagnosis of respiratory disease in Irish hospitals in 2004 (32). These represent 8.3% of all inpatient cases in men and 6% in women (Table 3.1). It is not possible from the ESRI Report to estimate exact numbers and mix of day cases and acute or chronic by ICD Code. However given the data from the analysis by Diagnostic Related Groups (DRG), it appears that day cases comprise 9.3%, inpatients with length of stay less than 30 days comprise 86.9% and inpatients with length of stay greater than 30 days comprise 3.8% of all respiratory patients (Table 3.2). By this method, 87% of respiratory inpatients are classified as acute admissions and 9% as day cases.

Hospital treatment by type of respiratory disease

About a third (32.5%) of hospital inpatient bed days used in the treatment of respiratory disease are due to pneumonia and other acute respiratory tract infections, just under a fifth (19%) due to chronic obstructive lung disease and one in twelve (8%) due to cancer of the lung (Table and Figure 3.3 show available data classified by ICD Code (32). In children aged 0-14, over half (55%) of all admissions for respiratory disease are due to acute infection (including pneumonia). In the elderly aged 65 and over, pneumonia and acute infection accounts for one quarter (25%) and obstructive lung disease for nearly a third (29%) of respiratory inpatient cases (Table 3.3).

It is also possible to examine numbers and bed days using data set out by Diagnostic Related Groups (DRGs) and the ESRI Report allows us significant extra analytical information using this parallel classification. Because of the different methodology numbers do not correspond exactly to ICD Code based information. By this analysis pneumonia accounts for 23.5% of respiratory bed days, COPD for 18% and lung cancer for 8%. A wider range of specific diagnoses are listed by this method (Table 3.4 and Figure 3.4).

Drug treatment

The Primary Care Reimbursement Service has published data on the numbers of prescriptions for respiratory diseases covering General Medical Scheme (GMS) patients, those in the Drug Payment (DP) and Long term Illness (LTI) Schemes and the High Tech Drugs (HTD) category. In 2006, there were 4,201,827 items prescribed for respiratory system diseases not including antibiotics and oral corticosteroids. The figure is largely made up of inhaled therapy and oral agents used for both asthma and the various classifications of COPD (Table 3.5). Of these, the majority were classed as anti-asthmatics but in reality this figure includes all inhaler therapy and oral bronchodilators for both asthma and the various classifications of COPD (30). In the

area of disease prevention general practitioners administered 299,769 influenza vaccinations, 12,339 anti-pneumococcal vaccinations and 16,286 combined influenza/anti-pneumococcal vaccinations. These attract a special item of service fee for GPs similar to the nebulizer service mentioned previously.

The fact that respiratory prescriptions account for a significant percentage of all prescription issued can be inferred from the high consultation rates for respiratory diseases and the fact that the PCRS costs for respiratory drugs (€106.08m) are exceeded only by those for cardiovascular disease (€275.66m), nervous system (€204.19m) and alimentary tract and metabolic system (€178.40m).

Another estimate of respiratory prescriptions is available from recent data commissioned by GlaxoSmithKline (GSK) although it is not in the public domain. This shows that in Ireland in 2006, about 3.9 million prescriptions were issued for items used to treat respiratory diseases. Almost 40% of these items were for agents used to treat asthma and COPD (Table 3.6) (33).

Although the GSK data reveal a higher number of total prescribed items as compared to the PCRS figures which might be explained on the basis that the latter excludes patients not availing of reimbursement schemes there are reasons for suspecting that both figures underestimate the true global total. This may be inferred from the fact that the detailed analysis figures from PCRS (30) reveal that there were 882,757 prescriptions for salbutamol (inhaled) and 443,647 prescriptions for beclomethasone and budesonide (inhaled), figures that significantly exceed the numbers in the GSK data file and which still do not include purely private prescriptions (Table 3.5). Given the enormous size and monetary cost of inhaled medications which are exceeded only by peptic ulcer preparations and statins in the PCRS analysis figures, it would seem worthwhile to have comprehensive data if only as a marker for the burden of lung disease in society.

Perhaps the most important information provided by the GSK data is the breakdown by disease type within the respiratory system and the important drug groups used in each sub-category. Although this table includes oral corticosteroids and antibiotics it must be pointed out that these agents may have been prescribed for other coexisting medical conditions. The data should therefore be treated with caution in respect of these particular drugs. However to completely suppress the data relating to these agents because a minority percentage has been used for other purposes seems unreasonable, especially given the methodology used in the survey where GPs were asked to record both diagnosis and prescription data for individuals. It remains a fact that the specific diagnostic groupings consume these agents.

Operations for respiratory disease / lung cancer

In 2004, there were 10,563 operations on the respiratory system (classified as being the principal procedure), of which 4,638 were bronchoscopies. In the same year the total number of operations on the respiratory system was 14,989 out of which 5,662 were bronchoscopies (32). Lack of a uniform and universal format for compiling individual centre surgical statistics makes it impossible to give a more detailed analysis for global surgery on the respiratory tract.

Important data is available from the National Cancer Registry relating to surgery for lung cancer for the year 2004. Of 1,579 new primary lung cancers diagnosed 224 (14%) had tumour directed surgery with 215 of these having specific excisions of the lung and/or bronchus (34). Of these 138 had lobectomies, 45 had pneumonectomies and 37 had other resection of the lung. (The totals do not match exactly as some cases had more than one category of excision). This data is in keeping with treatments reported in their report for the years 1994-2001 which is summarised in Table 3.7 (35). The appointment of significant numbers of additional medical oncologists in recent years may alter this pattern of treatment.

Table 3.1

Acute in-patient cases by main diagnosis and sex, 2004, Republic of Ireland hospitals

	Total	Men	Women	Bed Days
All diagnoses	987,615	438,627	548,988	2,673,913
Diseases of the Respiratory System (including TB and Lung Cancer), (010-018, 162, 176.4, 197.0, 197.3, 460-519)	68,233	36,291	31,932	337,538
Coronary Artery Disease (410, 414.0, 414.8, 411-413, 414.1, 414.9)	24,044	16,274	7,770	124,694
Other Cardiovascular Disease (390-459, excluding codes for coronary artery disease)	54,529	28,049	26,480	272,966
Cancer (excluding lung cancer) (140-239, excluding codes 162, 197.0, 197.3)	88,146	41,133	47,013	222,638
All diseases of the nervous system (320-389)	49,485	23,112	26,373	91,152
All diseases of the digestive system (520-579)	109,150	53,492	55,658	273,486
All diseases of the genitourinary system (580-629)	62,754	24,243	38,511	142,695
Complications of pregnancy, childbirth and puerperium (630-677)	106,982	–	106,982	299,303
Injury and Poisoning (800-999)	61,070	36,478	24,592	222,358
All other diagnoses	363,702	179,877	183,825	690,562

ICD (9th Revision) in parenthesis. Based on number of acute discharges reported to Hospital Inpatient Enquiry (HIPE) by participating hospitals, 2004. Acute discharges includes admissions 0-30 days duration. Total numbers are inclusive of day cases.
Source: HIPE and NPRS Unit, Economic and Social Research Institute (2007): Hospital Inpatient Enquiry (HIPE) Data (32).

Table 3.2

Total hospital discharges by major diagnostic category (selected groups), patient type and length of stay, 2004, Republic of Ireland hospitals

MDC Description	Day		In-patients				Total		Average Length of Stay (Days)		
	Number	%	Acute (0-30 d)	%	Extended (>30 d)	%	Number	%	Acute	Extended	Total
All diagnoses	425,978	100	546,476	100	15,161	100	987,615	100	4.9	62.4	6.4
4. Diseases and disorders of the Respiratory System	5,219	1.2	48,882	8.9	2,129	14.04	56,230	5.7	6.7	60.0	8.9
1. Diseases and disorders of the Nervous System	7,010	1.6	32,780	6.0	2,443	16.11	42,233	4.3	6.0	80.7	11.2
5. Diseases and disorders of the Circulatory System	19,835	4.7	61,807	11.3	1,858	12.3	83,500	8.5	6.0	58.4	7.6
6. Diseases and disorders of the Digestive System	74,473	17.5	64,990	11.9	1,615	10.7	141,078	14.3	5.0	55.2	6.2
7. Diseases and disorders of the Hepatobiliary System and Pancreas	3,178	0.75	14,128	2.6	497	3.3	17,803	1.8	6.7	49.2	8.1

Total column includes day cases. Based on data reported to Hospital Inpatient Enquiry (HIPE) by participating hospitals, 2004.
Source: HIPE and NPRS Unit, Economic and Social Research Institute (2007): Hospital Inpatient Enquiry (HIPE) Data (32).

Table 3.3

Acute in-patient days for cases of respiratory disease, by main diagnosis, sex and age, 2004, Republic of Ireland hospitals

	Men	Women	Admissions				Total	Hospital Bed Days	
			0-14	15-44	45-64	65+		Total	% RBD
Tuberculosis (010-018)	227	113	0	181	83	67	340	3,479	1.03
Cancer of trachea, bronchus and lung (162, 176.4, 197.0, 197.3)	1,662	1,168	0	111	1,088	1,630	2,830	27,610	8.18
Acute Respiratory Infections (460-466)	6,370	5,293	8,648	2,493	308	214	11,663	30,613	9.07
Pneumonia (480-486)	5,180	4,668	2,195	1,259	1,429	4,965	9,848	79,291	23.5
Asthma (493)	2,529	2,508	2,476	998	798	765	5,037	18,502	5.5
Obstructive Lung Disease (491.2, 492.8, 493.2, 494-496)	4,439	3,817	22	274	1,971	5,989	8,256	64,480	19.1
Other Respiratory Diseases	11,513	10,730	6,344	5,798	3,260	6,851	22,243	113,563	33.6
All Respiratory Disease (including all TB and lung cancer) (010-018, 162, 176.4, 197.0, 197.3, 460-519)	31,920	28,297	19,685	11,114	8,937	20,481	60,217	337,538	100

ICD (9th Revision) in parenthesis. See also footnote to Table 3.2. RBD – Respiratory bed days.

Source: HIPE and NPRS Unit, Economic and Social Research Institute (2007): Hospital Inpatient Enquiry (HIPE) Data (32).

Figure 3.3

Acute in-patient days for cases of respiratory disease, by main diagnosis, 2004, Republic of Ireland hospitals

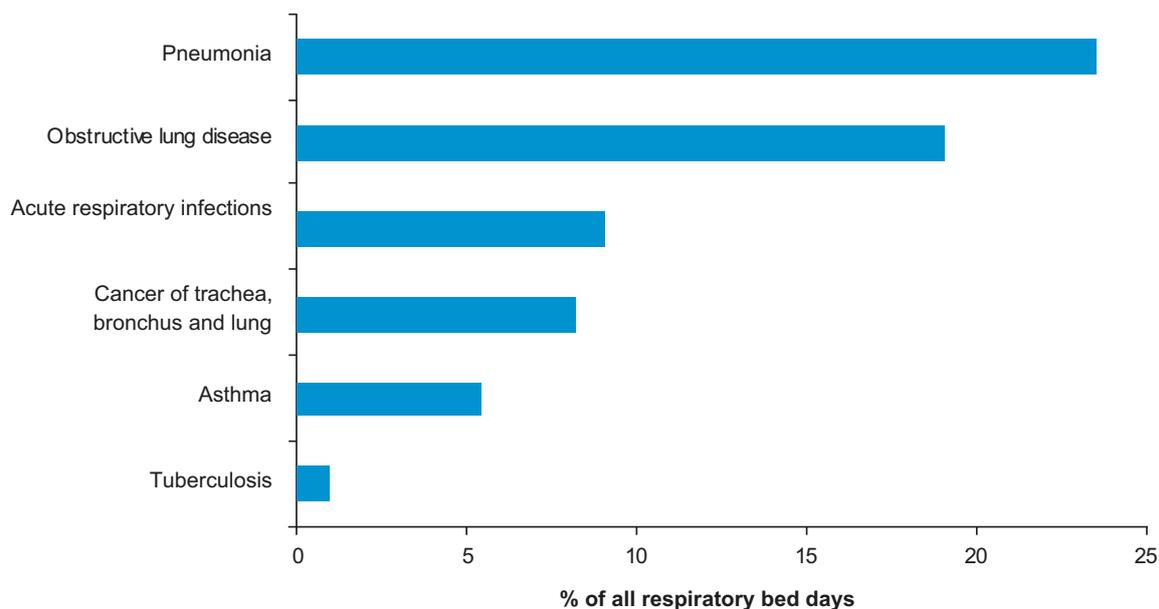


Table 3.4
Discharges from Voluntary and Health Board hospitals by respiratory-related diagnosis related groups, 2004, Republic of Ireland

MDC Description	DRG Number	All Hospital Inpatients	Total Days (Inpatient number x length of stay for each DRG number)	% of Respiratory bed days
Simple Pneumonia and Pleurisy (all ages, with and without complications)	89, 90, 91	9,832	101,841	23%
Chronic Obstructive Pulmonary Disease	88	8,403	77,350	18%
Bronchitis and Asthma (all ages, with and without complications)	96, 97, 98	7,769	25,963	6%
Respiratory Neoplasms	82	2,835	36,035	8%
Pulmonary oedema and Respiratory Failure	87	1,048	14,230	3%
Chest Surgery and Trauma (excluding tracheostomy)	75, 76, 77, 83, 84 excludes 482, 483	1,325	20,330	5%
Respiratory Infection and Inflammation (all ages, with and without complications)	79, 80, 81	1,768	32,237	7%
Interstitial Lung Disease (with and without complications)	92, 93	809	7,041	2%
Pulmonary Embolism	78	1,118	12,445	3%
Pneumothorax (with and without complications)	94, 95	770	5,418	1%
Pleural Effusion (with and without complications)	85, 86	916	11,742	3%
Respiratory System Diagnosis with Ventilatory Support	475	537	9,748	2%
Other Non-specific Respiratory	99, 100, 101, 102	13,443	84,628	19%
Total		50,573	439,008	

Source: HIPE and NPRS Unit, Economic and Social Research Institute (2007): Hospital Inpatient Enquiry (HIPE) Data (32).

Figure 3.4
Discharges from Voluntary and Health Board hospitals by respiratory-related diagnosis related groups, 2004, Republic of Ireland

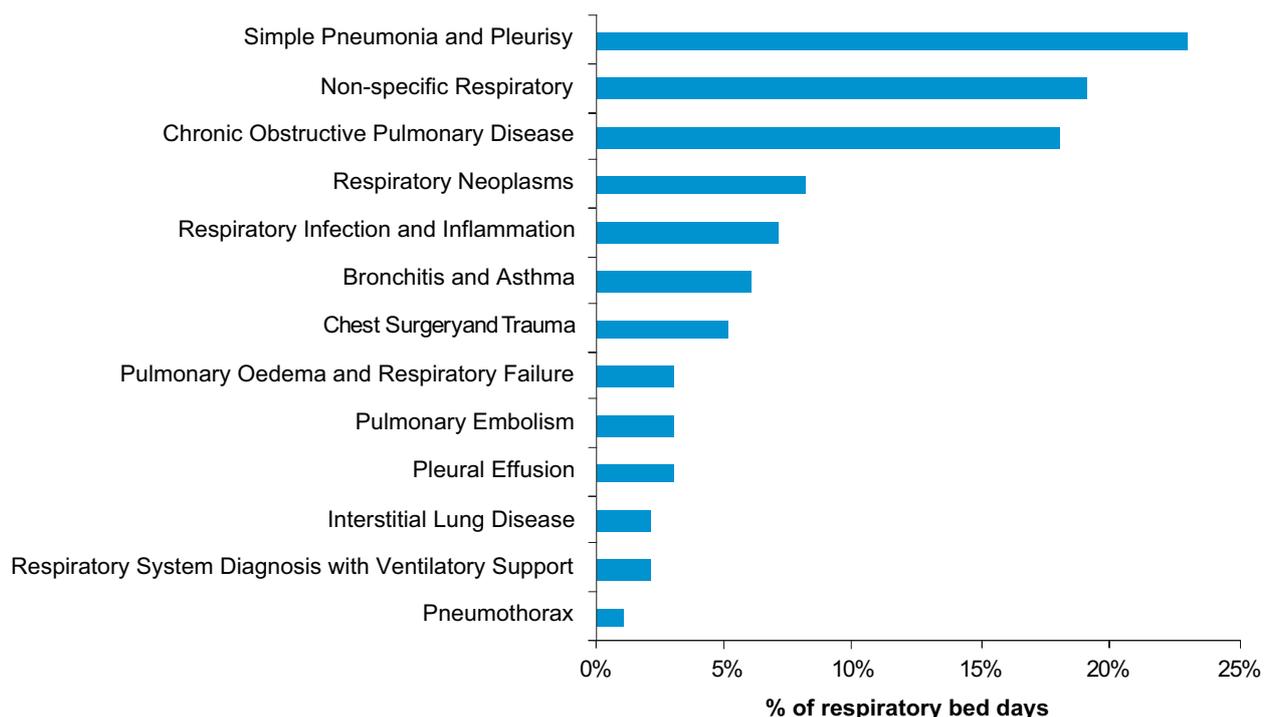


Table 3.5

Most commonly used and costly respiratory drugs, 2006, Republic of Ireland

Preparation	Prescribing frequency	Ingredient cost (€)
Salbutamol	882,757	4,809,748
Salmeterol + other drug	462,488	32,513,106
Beclomethasone	343,983	6,564,439
Carbocisteine	317,637	1,704,830
Salbutamol + other drug	301,339	8,031,971
Tiotropium Bromide	192,794	9,606,357
Formoterol + other drug	167,007	9,762,941
Montelukast	136,722	5,387,430
Budesonide	99,664	6,671,205
Fluticasone	85,223	4,463,770
Mometasone	42,542	674,280
Bosentan*	1,208	3,773,299
Sildenafil*	561	332,388
Iloprost*	129	775,199
Total	3,034,054	95,100,963

These figures combine data for the 100 most frequently prescribed and the 100 most costly drugs as listed for the GMS medical card, Drugs Payment and Long-Term Illness schemes. Less frequently prescribed items are not included. Antibiotics and corticosteroids are excluded. The year 2006 includes the new category of High Tech Drugs and the bottom three items with (*) are from this list. The prescribing frequency of sildenafil refers to its specific use for pulmonary disorders.

Source: Primary Care Reimbursement Service Report – Detailed Statistical Analysis of claims and payments (2006) (30).

Table 3.6

Prescriptions used in the prevention and treatment of respiratory diseases, 2006, Republic of Ireland

Asthma (J45-46)	Number of items prescribed (000)
Inhaled beta-agonist	274.619
Inhaled beta-agonist / anticholinergic	46.537
Inhaled corticosteroid	161.923
Inhaled corticosteroid / long-acting bronchodilator	111.966
Xanthines	23.310
Oral / injected corticosteroid	85.227
Antibiotic	45.91
Cough, mucolytics, antihistamines	12.535
Leukotrienes	25.412
Other	18.861
Total	806.300
Chronic Obstructive Pulmonary Disease (J40-44, 47)	
Inhaled beta-agonist	81.290
Inhaled beta-agonist / anticholinergic	120.053
Inhaled corticosteroid	50.339
Inhaled corticosteroid / long-acting bronchodilator	80.837
Xanthines	30.745
Oral / injected corticosteroid	51.050
Antibiotic	138.606
Cough, mucolytics, antihistamines	47.154
Leukotrienes	7.890
Other	16.222
Total	624.186

TABLE 3.6 – continued

Acute Lower Respiratory Infections (J20-22)	Number of items prescribed (000)
Antibiotics	433.407
Cough, mucolytics, antihistamines	53.977
Other	84.317
Total	571.701
Influenza / Pneumonia (J10-18)	
Antibiotics	38.6
Cough, mucolytics, antihistamines	7.599
Other	23.484
Total	69.683
Acute Upper Respiratory Infections (J00-06)	
Antibiotics	1,009.917
Cough, mucolytics, antihistamines	46.237
Other	221.399
Total	1,277.553
Chronic Upper Respiratory Disorders (J30-39)	
Antibiotics	213.829
Cough	12.476
Antihistamines	71.459
Intranasal corticosteroid	141.368
Oral / injected corticosteroid	25.94
Other	52.358
Total	517.43
Lung Cancer (C34)	
Non-chemotherapy	22.662
Cystic Fibrosis (E84)	
Antibiotics	2.769
Other	7.373
Total	10.142
Tuberculosis (A15, 16, 19, 31, B90)	
Anti-tuberculous antibiotics	2.943
Other	3.135
Total	6.078
Total All Respiratory Disease	3905.735

ICD (10th Revision) in parenthesis

Caution: Although this Table includes figures for antibiotics and steroid tablets it must be taken that a portion of these agents could have been prescribed for other co-existing conditions. Table compiled from data provided by GlaxoSmithKline (33).

Table 3.7

Percentage of lung cancer cases receiving main treatment modalities and combinations (within six months of diagnosis), 1994-2001, Republic of Ireland

Treatment	1994 - 2001	1994 - 1997	1998 - 2001
Total Cases	11,663	5734	5929
Any treatment	52.9%	51.5%	54.2%
No treatment	47.1%	48.5%	45.8%
Any surgery(a)	14.4%	15.8%	13.0%
Any radiotherapy	31.8%	29.4%	34.0%
Any chemotherapy(b)	15.3%	14.3%	16.3%
Surgery only	11.6%	12.8%	10.4%
Radiotherapy only	23.6%	22.1%	25.0%
Chemotherapy only	8.9%	8.7%	9.0%
Surgery + Radiotherapy	2.0%	2.2%	1.8%
Chemotherapy + Radiotherapy	5.6%	4.8%	6.4%
Others	1.2%	1.0%	1.5%

Source: National Cancer Registry Ireland 2007. Patterns of care and survival of cancer patients in Ireland 1994 – 2001 (35).

Only treatments or combinations making up at least 1% of cases in any period are listed.

(a) Surgery and related treatments. (b) Chemotherapy and related treatments.

COSTS

Total cost of respiratory disease to the Irish Health Service (€437 million)

While many of the data in this document refer to the most recently available statistical information (in many cases for the year 2004), it is important to consider the exponential costs of medical inflation in calculating the costs relating to respiratory disease. To describe the costs for 2004 would grossly underestimate the current cost of respiratory disease. Therefore, where possible, we have used data from 2006 to estimate the total cost of respiratory disease to the Irish Health Service, while acknowledging that these costs still represent an underestimate of the true costs in 2008.

Primary care (€71m)

The Primary Care Reimbursement Service (PCRS) (formerly General Medical Services Payments Board) Report (2006) (30) states that 2.9m persons were registered of which 1.2m (GMS patients) were entitled to all services free of charge, 1.5m were entitled to benefits under the Drug Payment Scheme (DPS) and 0.11m were entitled to Long Term Illness (LTI) benefits. These patients account for about 67% of the Irish population.

The Primary Care Reimbursement Service (PCRS) 2006 gives data on the distribution of medicines and appliances by anatomical therapeutic chemical classification. It also gives breakdown of doctors fees and practice costs as well as certain specific items of service which attract special payments of which two relevant to respiratory disease are quantified, namely influenza vaccination and nebulizer treatment for acute asthma.

Assigning a percentage of General Practitioner Fees and practice overheads and allowances to respiratory disease has proved a difficult task in the absence of details relating to patterns of morbidity (Section 2 Morbidity above). Assuming that 14.5% (in line with UK estimates from Burden of Lung Disease 2nd Edition) of GP consultations relate to respiratory problems gives a cost of €56,699,240.96 for 2006. (14.5% of €391,029,248 – total GMS payments to doctors for 2006).

In addition the cost of influenza and anti-pneumococcal vaccines and emergency nebulizer treatments came to just over €15m (PCRS stats: nebuliser – €2.1m, pneumococcal vaccine – €0.47m, influenza vaccine – €11.58m, pneumococcal/influenza vaccine – €0.94m) (30). The global cost to the state of primary care services for respiratory disease is therefore in excess of €71m.

Drugs (€106m)

Data on government funded drug costs in primary care is clearly set out in the PCRS Report 2006 (30). The breakdown of figures for respiratory drugs, medicines and appliances is as follows: GMS €71.96m; DPS €30.45m; LTI €0.36m; HTD €3.3m. Total costs directly related to respiratory drugs are therefore €106.08m. The overall data are divided into seven sub-groupings giving volumes prescribed and costs. This is set out in Table 4.1.

Hospital inpatient care (€246m)

The estimated casemix costs at 2006 values have been provided by the Health Service Executive (HSE) and details are set out in table 4.2 (36). There is a small difference in total patient numbers when compared to section 3 (Treatment) above.

We estimate there were 62,222 discharges (acute and extended) related to patients with primary respiratory

diagnosis by ICD coding in 2004. Costs information provided by the HSE gives an estimated casemix cost (at 2006 values) of €246,168,040 (36).

Hospital day case care (€3.9m)

The HSE has also provided estimated casemix cost for daycases at 2006 values (Table 4.2) (36). There were 5,869 daycases for diseases and disorders of the respiratory system in 2004. The estimated casemix cost at 2006 values for day cases is €3,905,119.

Hospital outpatient care (€10.2m)

The HSE gives an average cost per out-patient visit of €153 at 2004 values (36). Out-patient costs by specialty are not available. Statistics from the Department of Health and Children (DoHC) give a figure of 38,690 for total respiratory medicine attendances at consultant-controlled out-patient clinics in 2004 (37). It is evident that many general medicine attendances relate to respiratory disease and if we assume that the ratio by specialty of general medicine patients is the same as that between specialty clinic attendances (10.29% respiratory), then there are a further 16,974 (10.29% of 164,961 – the total outpatient attendances for General Medicine in 2004 according to DoHC figures) respiratory cases giving a total figure of 55,664 attendances and a cost of €8.52m (2004) and, with extrapolation based on hospital non-capital costs rise of 20% between 2004 and 2006, (38) a final cost of €10.2m for 2006.

Private costs of health care for respiratory diseases (€122.3m)

A significant fraction of health care expenditure in Ireland comes from household expenditure, varying between 14% in 1990 and 12% in 1996 (39). More detailed up-to-date public statistical information is lacking if one needs to assess such costs by diagnostic category. The Irish Pharmaceutical Healthcare Association (IPHA) estimates in the year 2006, 17% of the total self-medication market (€274m) is accounted for by cough and cold remedies (€47m) (40).

Estimating GP private fee income is difficult in the absence of published data. It is known that visiting and revisiting rates for private patients are somewhat less than half that of Medical Card patients (41). Confidential enquiries (by NJB) from GP contacts confirmed this and also suggested that a global private income estimate of about half that from GMS would be a reasonable assumption. Clearly this does not include some hundreds of GPs who are in fulltime private practice. If GMS income for respiratory services is as given above (€56.7m) then private income could be assigned a value of €18.9m. This is comparable to data from the CSO's Household Budget Survey, 2004 - 2005 which shows that average household expenditure per week for private health insurance is €12.43 and for doctor fees is €3.71. If one applies this as a ratio to our cost of €57.3m for private in-patient health care (see below) one gets doctor fees of €17.1m. Given the close concordance of these estimates we are assigning a value of €18m for private GP care.

The bulk of private hospital care for Irish patients is reimbursed from private health insurance sources of which the VHI is by far the largest. If one combines the hospital and physician benefits for private hospitals with the physician benefit for private patients in public hospitals, one can estimate the cost to the patient of "private" inpatient services for respiratory diseases (in turn identified using DRG system). From information provided by VHI and data on their share of the private health insurance market one can estimate that the private in-patient health care costs for respiratory disease amounts to €57.3m (42) (€45.9m worth of claims for respiratory disease in 2006 with 80% market share).

The private sector therefore cost patients at least €122.3m in 2006.

Production losses and social welfare costs due to respiratory disease (€387.1m)

Mortality (€187.1m)

Putting a monetary value on lives lost is at best a delicate issue. A variety of surrogates have been used and two alternatives will be set out in this section.

The first costing will follow the approach adopted by original INHALE report (1). This has been termed the Human Capital Method and values the prevention of fatalities on the basis of livelihood using a “gross output” approach. In utilizing this approach it has proved difficult to provide detailed breakdown of losses due to premature respiratory mortality in Ireland. This arises from the use of existing publications which do not allow breakdown of earnings by age and sex. To estimate production losses caused by mortality from respiratory disease, it was assumed that men would have worked to age 65 years and women to age 60, had they not died.

The number of working years lost due to deaths from respiratory disease was calculated by multiplying the number of deaths (using 2004 statistics as in Table 1.1) (2) in each age-sex group by the number of working years left to each person who died. This total was adjusted to take account of the fact that not everyone was in employment by utilizing published data on participation rates in the labour force and the rate of unemployment in mid 2006 (50,51). The results in Table 4.3 show that about 6,034.4 working years were lost per year from deaths due to respiratory disease in Ireland. The adjusted working years were multiplied by the average annual earnings for males and females in 2006, to give the estimated cost related to premature mortality from respiratory disease (43). The overall value of production losses was €187.1 million.

The second or alternative method of valuing lives lost is to use the so-called Value of Statistical Life (VoSL) approach. VoSL can be defined as the sum of individuals’ own valuations of reductions in risks to their own lives based on “willingness to pay” concept. The rationale involved in this approach is preferred both by economic analysts in Ireland and by the EU Commission for the purposes of factoring health benefits into economic cost-benefit analyses (44-47). The EU website includes a background for non-economists. An important element in this approach is to give a best estimate for VoSL together with upper and lower estimate values which are used for sensitivity analysis. A further important factor to keep in mind is that VoSL using this approach are fairly constant and consistent for deaths up to age 65 but fall significantly with further advances in age. In using a cut off of 65 years for premature mortality the resulting figures will underestimate the true total value.

The EU Commission Workshop of November 2000 suggested that for all EU countries, the following values for VoSL should apply: best estimate €1.4m; upper estimate €3.5m; lower estimate €0.91m (47). Recent checks suggest that these values remain static. It is of interest to note one recent Irish study used a VoSL of €3.03m in the context of housing and domestic energy efficiency as they relate to excess winter mortality (46). Values of similar but slightly lower magnitude have been used in relation to smoking related mortality (44). A total of 890 individuals less than age 65 died from respiratory disease in 2004 (Table 1.1). Applying the EU Workshop figures for VoSL suggests that the best estimate for the value of preventing these fatalities is €1,246m and within a range from €809.9m to €3,115m. We would suggest that for purposes of cost-benefit analysis in regards to investments to reduce the burden of lung disease, a value of at least €1,246 million per annum should be assigned as the potential benefit of eliminating premature death from lung disease.

The preceding paragraphs illustrate how large variations can arise in assigning monetary values to the costs of premature mortality. Given that most medical literature in this area follows the loss of earnings model, we will use this figure for our overall analysis although with some misgiving for reasons stated above.

Morbidity (€200m)

Given a considerable rise (19%) in claims for disability benefit between 2004 and 2006 we are choosing to use true 2006 claim numbers and costings in the section. From information provided by the Department of Social, Community and Family Affairs it is known that approximately 620,688 working days were lost due to respiratory disease in 2006, by individuals being paid Disability Benefit (18). Multiplying the number of days lost by the average daily earnings (8 x average hourly rate for all industrial workers of €14.02 (CSO)) for 2006 results in an estimate of €69.6m of lost production due to respiratory disease. In addition the 47,270 persons involved received Disability Benefit totaling €16.4m (18).

Thus, total losses/costs for short-term respiratory disease amounts to €86m. In the absence of any figures for the total number of individuals on long-term Invalidity Pensions due to respiratory disease it is impossible to provide a monetary value for their loss of productivity and the cost of Pension payments to the state.

There are no official data on costs related to long-term absenteeism relating to lung disease in workers themselves or to work lost by parents of children with long-term recurrent illness such as asthma. The figure of €86m is therefore a considerable underestimate.

A recent study carried out by the Asthma Society of Ireland estimates that in 2003, asthma cost the state €463m in total and of this emergency care and hospitalization accounted for €227m (48). Another study that calculated the direct and indirect costs for patients with all stages of COPD attending a hospital clinic estimated an average cost of €5,398 per patient. However, it is likely that selecting patients from a hospital clinic may overestimate secondary care costs while underestimating primary care costs and therefore may not be representative of the global burden of COPD related cost (49). Neither of these studies absolutely clarify total national patient populations classified by disease severity and at the same time clarify costs outside Health Service programmes and it is therefore impossible to arrive at a true estimate of costs over and above official statistics. In the first INHALE report we estimated such morbidity costs for asthma alone between €80m and €194m, while acknowledging the information deficits in this calculation.

It seems prudent to adopt a conservative estimate in such circumstances, and (excluding direct health care costs) have assigned a figure of €200m for morbidity costs.

Summary of Costs

Putting the various costs together reveals the pattern of cost distribution (Tables and Figures 4.4 and 4.5). These data confirm the large personal health costs for individuals and the enormous economic impact of lung disease in Ireland. We would stress again the fact that there are large gaps in epidemiologic data and very imperfect costing systems in Ireland. This analysis based on 2006 costings will be rapidly rendered obsolete given current rates of inflation in medical costs.

Table 4.1

Number and cost of prescribed items used in the treatment of respiratory disease and included in PCRS returns, 2006, Republic of Ireland

Product Type	Number of prescriptions (000)	Ingredient cost (Euro, 000)
Respiratory System	4,183	102,410
Nasal Preparations	355	4,414
Throat Preparations	11	26
Anti-asthmatics	3,083	92,562
Cough and Cold Preparations	352	1,848
Antihistamines for Systemic Use	382	3,536
Other Respiratory System Products	1	24

This table only includes drugs which are clearly used in treating respiratory disease. Antibiotics and oral corticosteroids frequently used to treat exacerbations of asthma and COPD are not included. Also excluded are drugs used to treat tuberculosis and lung cancer. The table includes figures for GMS and DPS patients only. The costs are inclusive of the monthly payment of Euro 85.00 payable to the pharmacy by DPS patients. Anti-asthmatics include inhalers of all types prescribed for both asthma and COPD.

Source: Primary Care Reimbursement Service. Detailed Statistical Analysis of Claims and Payments – 2006 (30).

Table 4.2

Diseases of the Respiratory System based on Principal Diagnosis: Inpatient Discharges, Daycases and Casemix Costs, 2006, Republic of Ireland

Hospital Group	Inpatient Discharges		Estimated Costs		Average (€)
	n	%	Total (€)	%	
Group 1	17,178	27.6	97,959,449	39.8	5,703
Group 2	34,777	55.9	106,961,178	43.5	3,076
Other	10,253	16.5	41,247,413	16.8	4,023
Total	62,208	100	246,168,040	100	3,957
	Day Cases		Estimated Costs		
Group 1	2,668	45.5	1,771,065	45.4	664
Group 2	2,762	47.1	1,820,156	46.6	659
Other	439	7.5	313,899	8.0	715
Total	5,869	100	3,905,119	100	665

Data Sources: HIPE and NPRS Unit, ESRI and DOHC.

Group 1 Hospitals: 5 DATHs; Connolly; CUH; UCHG.

Group 2 Hospitals: Cavan; Monaghan; Lourdes; Drogheda; Louth General; Navan; Leterkenny; Sligo; Mayo; Merlin Park; Portiuncula; Croom; Limerick; Tralee; Mallow; Mercy University; South Infirmary/ Victoria; St Mary's Orthopaedic; St Luke's; Kilkenny; Waterford; Wexford; Longford/Westmeath; Portlaoise; Tullamore; Loughlinstown.

Source: Strategic Health Planning & Evaluation, Population Health Directorate, HSE.(36)

Table 4.3

Working years lost due to mortality from respiratory disease and estimates of production losses, 2006, Republic of Ireland

Age	Working years lost*			Production loss (Euro, millions)		
	Men	Women	Total	Men	Women	Total
< 35 years	1,224.7	823.2	2,047.9	41.8	19.3	61.1
35-44 years	566.9	360.4	927.3	19.3	8.5	27.8
45-54 years	1,349.9	466.3	1,816.2	46.0	11.0	57.0
55-64 years	1,129.3	113.7	1,243.0	38.5	2.7	41.2
All ages	4,270.8	1,763.6	6034.4	145.6	41.5	187.1

* After adjustments to take account of labour force participation rates and unemployment rates.

Sources: Central Statistics Office (2007) (2, 43, 50, 51).

Table 4.4

Direct public health costs of respiratory disease, 2006, Republic of Ireland

Category	Costs (Euro, millions)	Percentage
Primary Care	71	16
Prescribed Medications	106	24
Hospital Out-patient Care	10.2	3
Hospital Day Care	3.9	1
Hospital In-patient Care	246	56
Total	437.1	100%

Sources: See text.

Figure 4.4

Direct public health costs of respiratory disease, 2006, Republic of Ireland

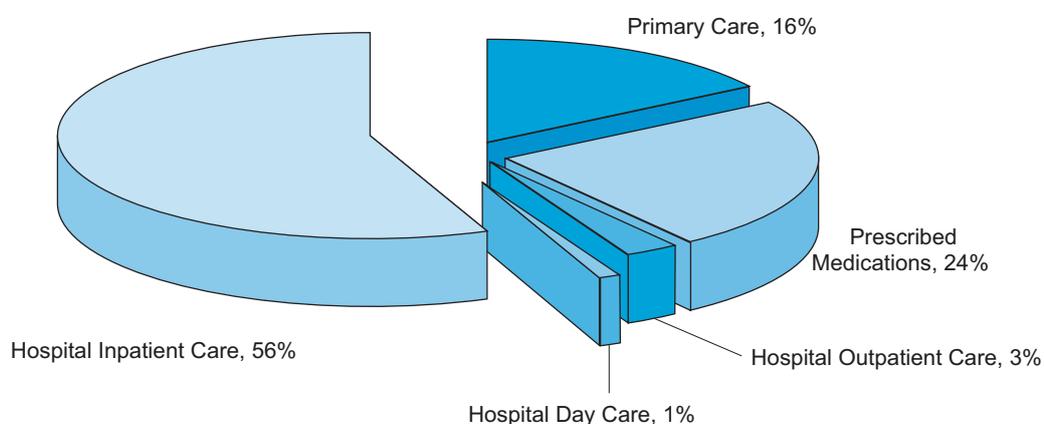


Table 4.5

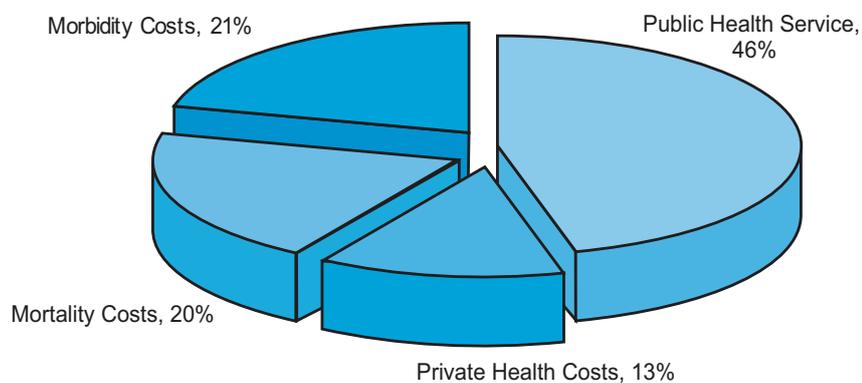
Global costs of respiratory disease, 2006, Republic of Ireland

Category	Costs (Euro, millions)	Percentage
Public Health Service	437.1	46
Private Health Costs	122.3	13
Mortality Costs (Production losses only)	187.1	20
Morbidity Costs	200	21
Total	946.5	100%

Sources: See text.

Figure 4.5

Global costs of respiratory disease, 2006, Republic of Ireland



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The Irish Thoracic Society (ITS) is the official society for the broad spectrum of healthcare professionals involved in the care of patients with chronic or acute respiratory disease on the island of Ireland. Membership of the Society is drawn from respiratory physicians, internal medicine physicians, paediatricians, thoracic surgeons, general practitioners, junior doctors, nurses, physiotherapists, pharmacists, dieticians, pulmonary function and respiratory technicians, scientists and other healthcare providers who specialise or have an interest in respiratory disease and care. The Society promotes the highest standards of care for patients with respiratory disease through education, research, advocacy and public information activities.

The ITS is a registered charity – Registered Charity Number CHY17510.

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