"Population Mortality and Morbidity in Ireland- A Summary of the Report of the Working Party"

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Ireland

Summary

This is a shortened version of the full report by the Working Party of the Society of Actuaries in Ireland. It examines trends in population mortality in Ireland from 1962 to 1996. Although reductions are observed these do not extend to all ages. Reasons for this are discussed. A cohort effect is revealed for those born in the 1930's. Comparisons are made with International experience showing Ireland to still be suffering comparatively high population mortality. Of particular concern is suicide for young males and the high level of road traffic accident deaths. The interaction of mortality and morbidity is considered.

"Lebenserwartung und Sterblichkeit der Bevölkerung in Irland."

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Dies ist eine verkürzte Version des Gesamtberichts der Working Party des Verbandes der Aktuare in Irland. Dieser Bericht untersucht Trends in der Lebenserwartungsrate der Bevölkerung in Irland zwischen 1962 und 1996. Obwohl Rückläufigkeiten zu sehen sind, erstrecken sich diese nicht über alle Altersgruppen. Die Gründe hierfür werden im Bericht diskutiert. Das Geburtsdatum eine Wirkung hat, sieht man bei den Leuten die in den 1930-iger geboren wurde.

Contents

1.Introduction

1.1 The Working Party on Population Mortality and Morbidity was established by the Health Committee of the Society of Actuaries in Ireland with terms of reference:-

"To analyse death and morbidity for the Irish Population examining different causes, examining trends and making comparisons with other countries"

1.2 This paper is a summary of the Working party's report, which was presented in April 2001. A full copy is available on the Society's web-site.

Outline Conclusions

1.3 The following are the more significant conclusions of this paper.

- In general there have been substantial improvements in Irish mortality over the recent past.
- This has not however extended to Irish males aged 15 to 24.
- There is evidence of a cohort effect which may mean that we should expect substantial improvements in pensioner mortality over the next decade.
- Ireland still does not compare well with other similar countries.
- For males, mortality rates from heart disease, road traffic accidents and suicide are worse than other countries.
- For females, mortality rates from respiratory diseases, circulatory diseases and cancers are worse than other countries. Mortality rates from breast cancer are significantly higher.
- Improving span of life is likely to increase the span of healthy life.
- Mental illness has a significant impact upon morbidity in Ireland.
- HIV infection is rising and should be monitored as it may lead to a return of rising AIDS deaths.
- The proportion of the population smoking has not fallen recently and smoking remains a major cause of avoidable premature death.
- Socio-economic factors have a very significant impact on mortality in Ireland.
- Recent increases in economic wealth may lead to improvements in mortality in the near future.
- Improvements in mortality rates are likely to accelerate in the future. In addition, efforts by the Irish State to address certain health issues provide further potential for improvement.

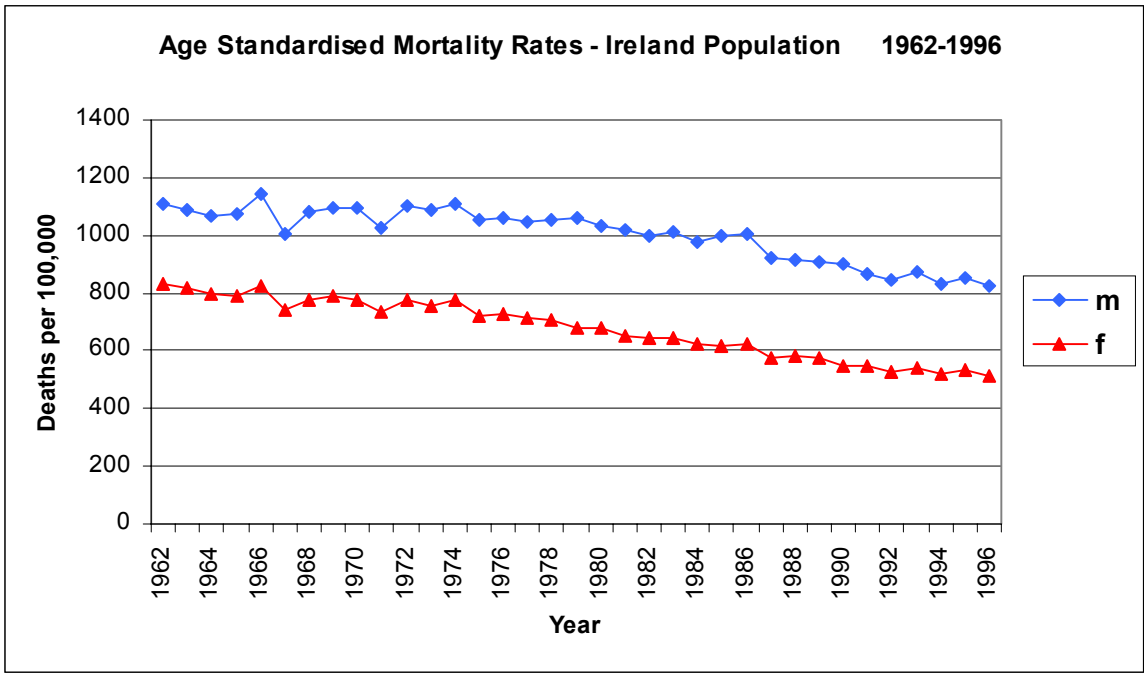
2 Overall Pattern of Mortality.

Aggregate Experience

2.1 We have calculated age standardised death rates from the age-specific death rates in Vital Statistics for the period 1962 to 1996. The rates were standardised using the WHO world standard population as this facilitated comparisons with other countries.

2.2 There have been very significant improvements over the period. The overall male mortality rate has reduced by 26%, which is equivalent to an annual improvement rate of 0.9%. Most of the reduction in male mortality rates took place in the 1980's and 1990's. The overall female mortality rate has reduced by 39%, which is equivalent to an annual improvement rate of 1.4%. Significant reductions in female mortality rates started in the 1970's.

2.3 The graph below demonstrates these reductions.



2.4 Life expectancy (calculated using mortality rates experienced in a given year) have increased as shown in the table below.

	Males		Females	
Age	1962	1996	1962	1996
0	69	73	73	78
1	68	72	72	77
15	55	59	58	63
45	27	30	30	34
65	11	13	13	17

Reductions in mortality rates by age bands

2.5 The reductions in mortality rates for different age bands are shown in the table below.

	Males		Females	
Age-band	% Reduction	Annual %	% Reduction	Annual %
0-4	80%	4.6%	77%	4.3%
5-14	51%	2.1%	73%	3.7%
15-24	-13%	-0.3%	37%	1.3%
25-34	3%	0.1%	47%	1.9%
35-44	38%	1.4%	57%	2.5%
45-54	42%	1.6%	52%	2.1%
55-64	34%	1.2%	42%	1.6%
65-74	19%	0.6%	36%	1.3%
75-84	15%	0.5%	32%	1.1%
85+	18%	0.6%	23%	0.8%

2.6. Infant and child mortality rates have reduced by more than the mortality rates of the other age categories. We have not analysed the causes of infant or child mortality in this paper.

2.7 The mortality rates for 15-24 year old males have actually increased over the period and the mortality rates for 25-34 year old males have barely improved. The increase in the mortality rates due to road traffic accidents and suicides is shown in Appendices 4 & 5.

2.8 The reductions in mortality rates from circulatory diseases have contributed to the improvement in mortality rates for 35 to 64 year olds.

2.9 Mortality rates from lung cancer have increased over the period, particularly at the older ages. This possibly reflects the increasing prevalence of smoking in the earlier part of the last century and this may explain the lower improvements at the older ages and also the lower improvements for males.

Cohort Analysis

2.10 There is evidence of a cohort effect in the Irish population mortality similar to that identified in other countries. In the UK the mortality rates of those born between 1925 and 1945 have improved at the greatest rates throughout the 20th century.

2.11 The table below shows the male mortality improvements over each decade for the different age groups.

Year/Age	25-34	35-44	45-54	55-64	65-74	75-84	85+
All Years	-0.4%	1.0%	1.5%	1.1%	0.5%	0.3%	0.2%
1962-1970	0.4%	-0.2%	-0.5%	-0.5%	-1.2%	0.4%	-1.1%
1971-1980	1.1%	1.2%	0.7%	0.3%	0.7%	-0.7%	1.0%
1981-1990	-0.7%	2.2%	4.1%	1.9%	1.2%	0.7%	0.2%
1990-1996	-3.7%	0.2%	1.4%	3.4%	1.5%	1.2%	0.8%

2.12 There was very little improvement in any mortality in the 1960's. The biggest improvement in mortality rates in the 1970's was for those aged 35 to 44. The biggest improvement in the 1980's is those for age 45 to 54. The biggest improvement in the 1990's was for those aged 65 to 74.

2.13 This ripple effect seen in the graph would suggest that people born in the 1930's are much healthier than earlier generations. This effect should continue as they get older.

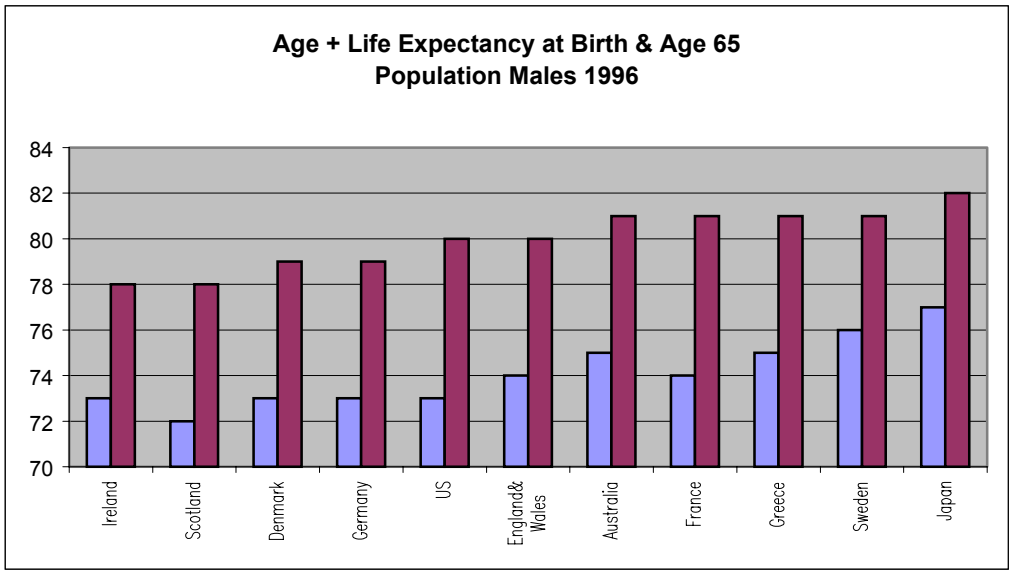
2.14 The table below shows similar data for females.

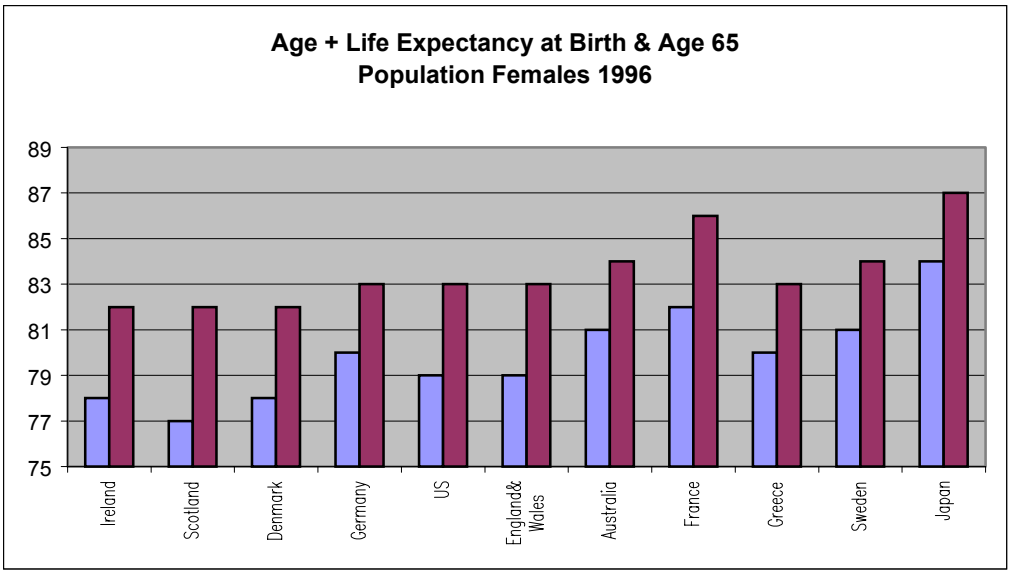
Year/Age	25-34	35-44	45-54	55-64	65-74	75-84	85+
All Years-	1.0%	1.9%	2.0%	1.5%	1.2%	1.0%	0.6%
1962-1970	2.4%	0.7%	1.0%	-0.4%	0.5%	1.5%	-0.6%
1971-1980	2.2%	2.3%	1.9%	1.1%	1.1%	-0.1%	1.4%
1981-1990	-1.3%	2.7%	2.7%	2.4%	2.1%	2.1%	0.9%
1990-1996	1.0%	1.6%	2.4%	3.3%	0.8%	0.4%	0.2%

2.15 This shows the same pattern as the male mortality. The greatest improvements in each decade appear to be for those born in the 1930's.

Comparison with other Countries

2.16 The graphs below show life expectancy at birth and at age 65 for males and females for different sample countries.





2.17 Ireland ranks very poorly compared to other countries on life expectancy for both males and females. The countries in our sample were chosen by the working party as being of interest and/or comparable to Ireland. We also compared life expectancy at age 65 across all EU countries and found Ireland to be worst for both males and females.

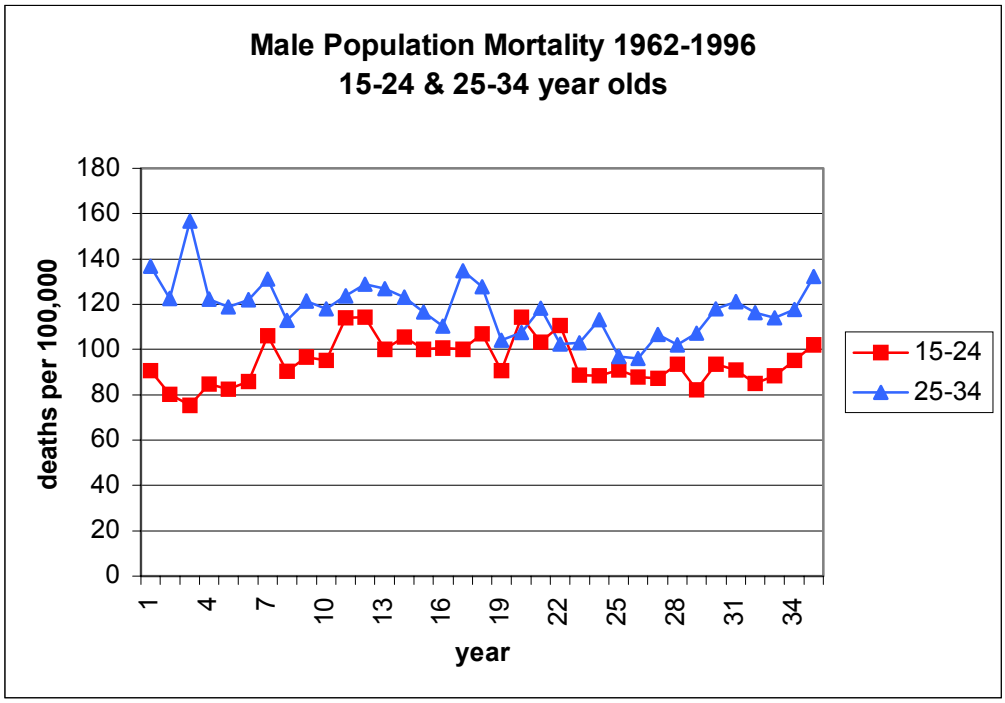
2.18 Reasons for this are discussed in the next section where we analyse by cause.

UK Comparison of Trends

2.19 It is interesting to compare the rates of improvement shown in Section 2.5 with those in Section 1.4 of Willets' paper (2).

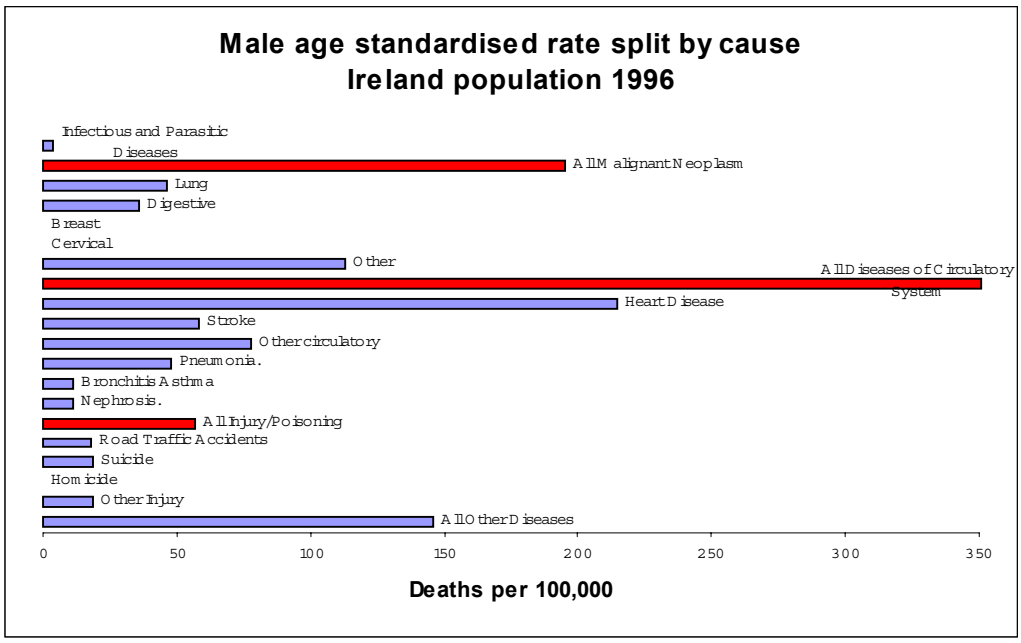
	Average annual rate of mortality improvement	
Age Group	Male	Female
20-24	0.8	1.4
25-29	0.5	1.6
30-34	0.6	1.6
35-39	1.1	1.6
40-44	1.5	1.8
45-49	1.8	1.7
50-54	1.8	1.4
55-59	1.8	1.1
60-64	1.7	1.0
65-69	1.5	1.0
70-74	1.3	1.2
75-79	1.1	1.4
80-84	0.9	1.3
85+	0.8	1.6

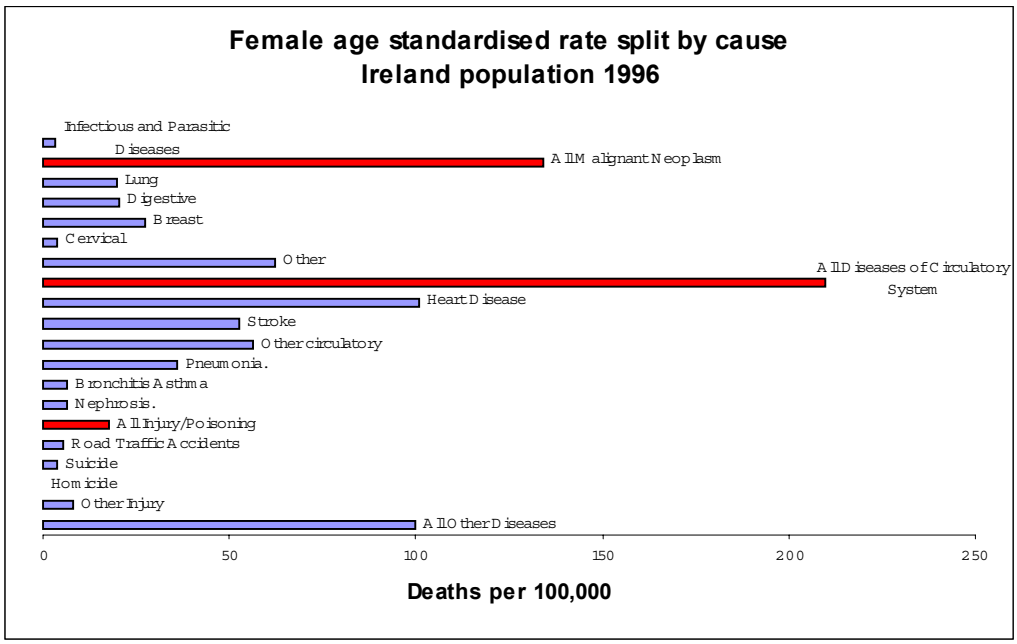
2.20 In the UK, the improvements since the 1960's extend to the older ages to a greater extent than in Ireland. The worsening of mortality for the Irish males aged 15 to 24 is not reflected in the UK. This reflects the poor Irish experience with Road Traffic accidents and Suicide. The graph below shows the mortality rates of 15-24 and 25-34 year old males over the period of investigation.



3. Analysis of Mortality into Causes

3.1 The tables below breakdown the age standardised rates shown in Section 2 by the main causes of death. Figures are for 1996 and are qx rates per 100,000 lives. The graphs also show the totals for all circulatory diseases, all malignant neoplasms and all injury/poisoning.





Source: Calculated from Table XXI CSO 1996 Report on Vital Statistics

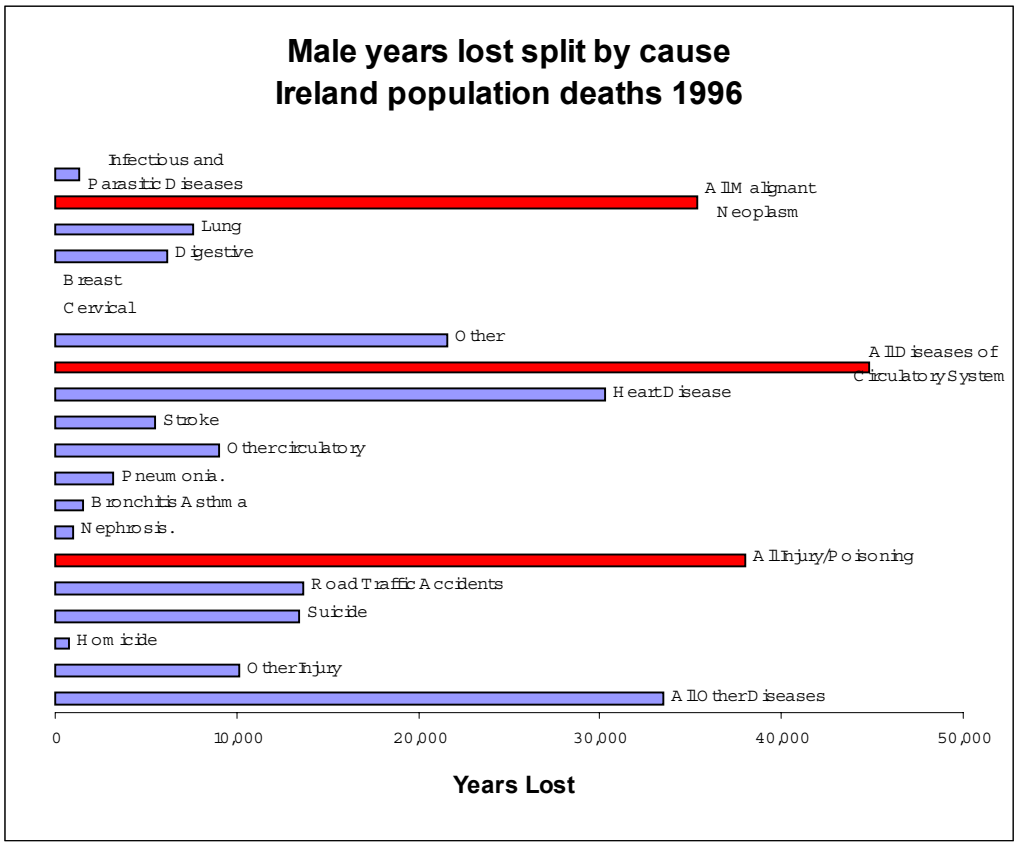
3.2 The figures show that diseases of the circulatory system are the biggest cause of death in Ireland for both males and females. Malignant neoplasms are the second biggest cause of death for both sexes. Lung cancer causes more deaths among males. Road traffic accidents and suicides also account for a much greater proportion of deaths among males.

3.3 The vast majority of deaths for younger males are non-health related. Over one quarter of deaths for males age 15-34 are due to suicide and over one quarter are due to road traffic accidents. With increasing age circulatory diseases and cancer become the main killers. The impact of cancer declines at the older ages. Respiratory diseases account for a high proportion of deaths at the older ages.

3.4 A large proportion of the younger female deaths are also non-health related. Cancer deaths account for a much higher proportion of the female deaths but again this declines at the older ages. Circulatory diseases account for most deaths at the older ages. Again respiratory diseases account for a high proportion of deaths at the older ages.

Years Lost Analysis

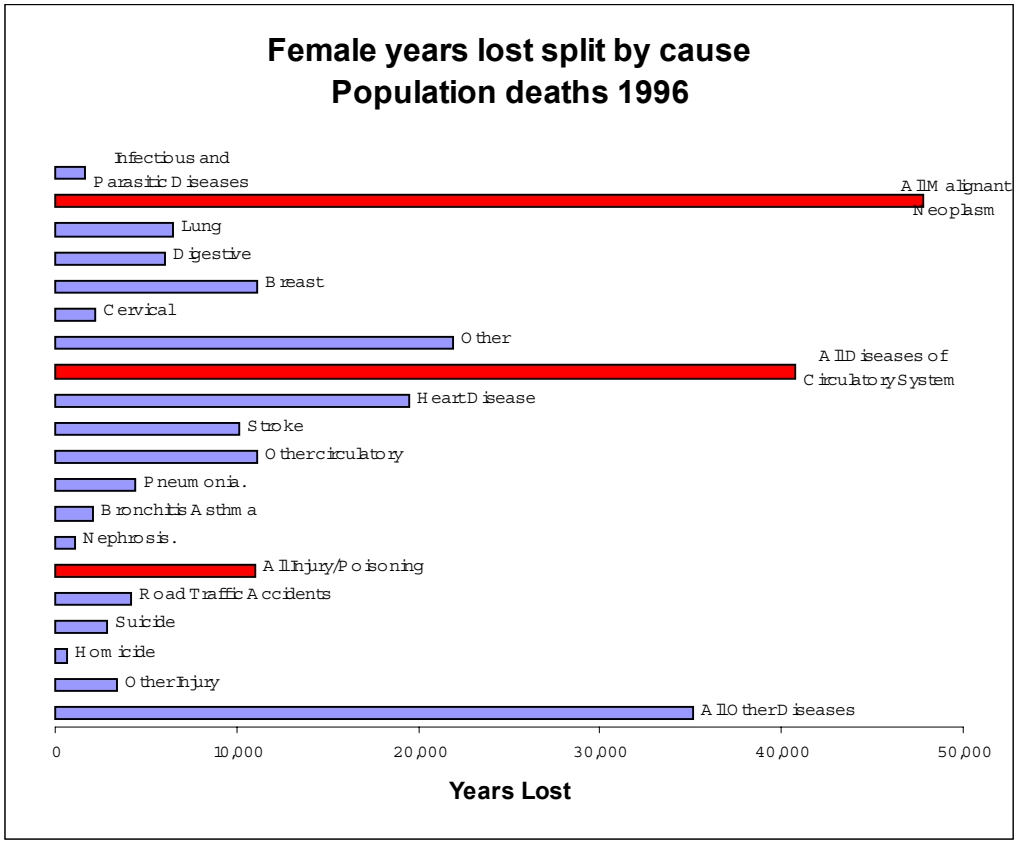
3.5 Years' lost analysis is another method of analysing the impact of diseases on mortality. This method totals remaining life expectancy for all deaths over a set period. Years lost can be considered as a measure of premature death and gives a greater weight to deaths at younger ages.



3.6 The total number of male life years lost in 1996 due to premature death was 159,000.

3.7 As expected this changes the relevant importance of the causes. Heart disease is still the biggest cause of years lost due to premature death. But accidental and violent deaths result in more years lost than all cancer deaths and road traffic accidents and

suicide together result in more years lost due to premature death than stroke and lung cancer.



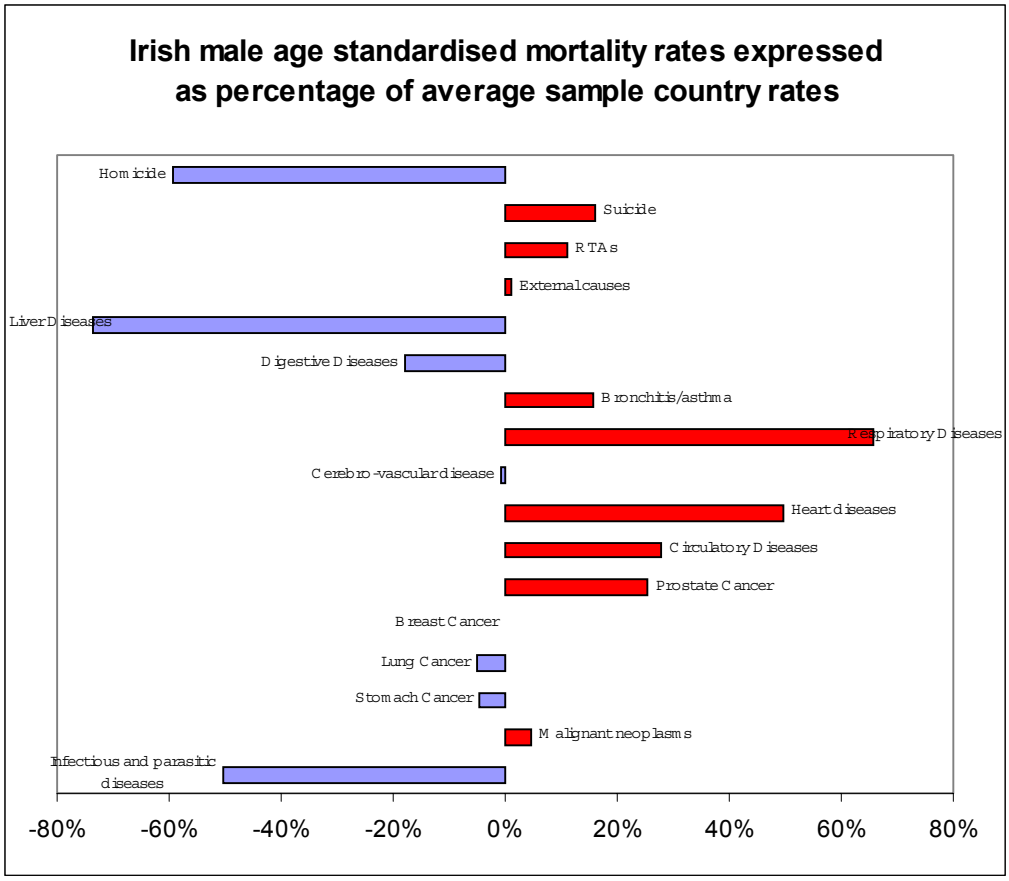
3.8 The total number of female years lost in 1996 was 144,000.

3.9 Cancers rather than circulatory diseases are the biggest cause of years lost due to premature death for females. Breast cancer causes more years lost than other cancers. Road traffic accidents, suicides and other accidental or violent deaths are less significant for females than males.

International Comparisons

3.10 In this section we have calculated the age standardised mortality rates for the major causes of death in Ireland and the sample countries selected in section 2. The WHO world population standard was used to standardise the rates.

3.11 For each of the main causes the graph compares Ireland's experience to the average experience of the sample countries..



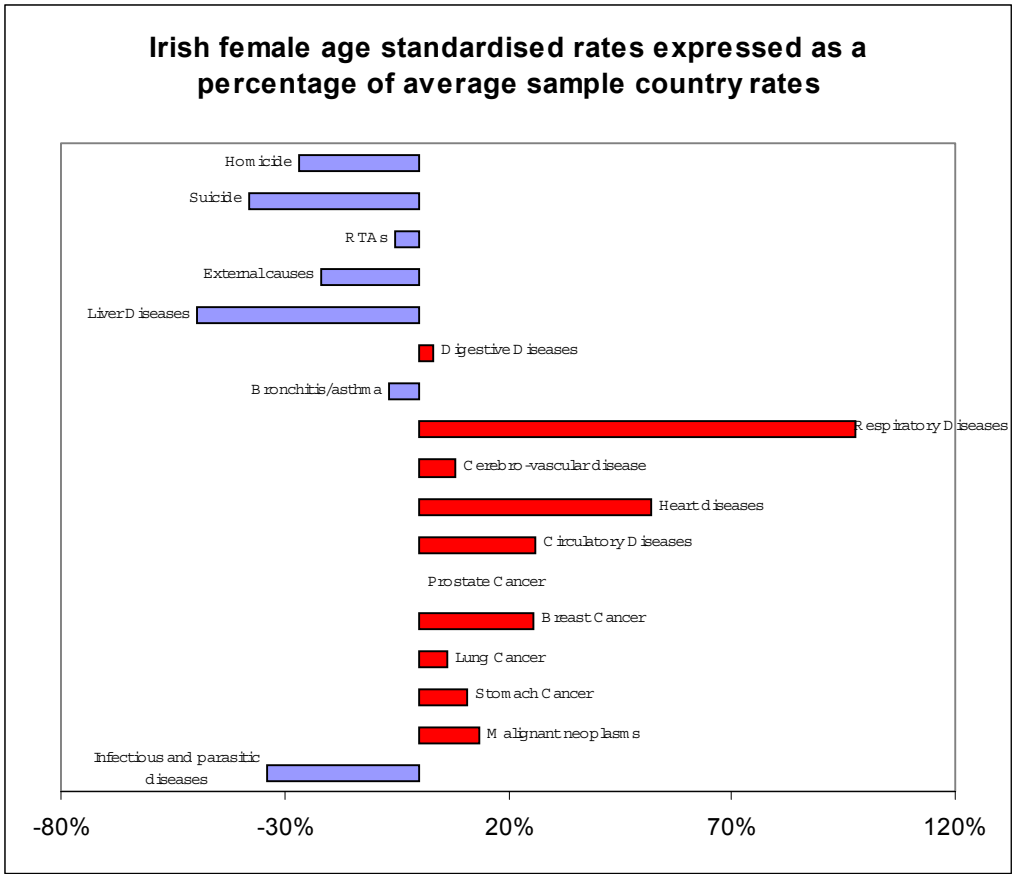
Source – Calculated from WHO Statistical Information System Mortality Data. Countries: Ireland, Scotland, Denmark, Germany, US, England & Wales, Australia, France, Greece, Sweden, Japan. 1996 for all except Australia 1995.

3.12 As can be seen the most significant divergences in experience from other countries are respiratory disease, heart disease and other circulatory diseases.
As heart disease is our biggest killer the poor relative experience is significant.

3.13 Irish experience on road accidents and suicide is also poor.

3.14 On the positive side, Ireland has low incidence of homicide, infectious diseases and liver diseases. (The number of deaths from liver diseases is low compared to other diseases.)

3.15 It should be noted that these are percentage indicators and so do not show actual importance of each cause.



Source – Calculated from WHO Statistical Information System Mortality Data. Countries: Ireland, Scotland, Denmark, Germany, US, England & Wales, Australia, France, Greece, Sweden, Japan. 1996 for all except Australia 1995.

3.16 Again the most significant divergence in experience from other countries is respiratory disease, heart disease and other circulatory diseases.

3.17 Female experience compares favourably for accidents and violent deaths. Again infectious diseases and liver problems are low.

3.18 However female experience compares poorly for all forms of cancer and for breast cancer in particular.

4.1 Cardiovascular disease

4.1.1 Cardiovascular disease is a very broad categorisation and includes illness and death relating to coronary heart disease, stroke, and other cardiovascular causes such as heart failure, diseases of the arteries including aneurysms, hypertension and rheumatic heart disease.

4.1.2 It is the single largest cause of death in Ireland. In 1997, 43% of all deaths were caused by one of these forms of cardiovascular disease.

4.1.3 The rate does appear to differ slightly between males and females. Cardiovascular disease is the main cause of death for men who are under 65 years of age. However, for females within this age group it is second to cancer as the main cause of death.

4.1.4 The incidence of heart disease is reducing throughout the Western World. This is also the case in Ireland.

4.1.5 It is also important to distinguish between the patterns in each of the sub-categorisations of cardiovascular disease:

Coronary Heart Disease

4.1.6 Section 3 shows that coronary heart disease death rates in Ireland continue to be high compared to other countries. For both males and females under age 65 years, Ireland has the highest death rates from coronary heart disease in Europe.

4.1.7 However, the good news is that the rate has reduced significantly in recent years, in particular at the younger ages.

4.1.8 There appears to be some geographical variation in the death rates from coronary heart disease within Ireland. In particular, for women, the greater Dublin area (Dublin, Kildare and Wicklow) and the mid-West area (Limerick, Clare and North Tipperary) have a statistically significant lower rate of coronary heart disease compared to the rest of the country. For males, the lowest rates are within the Western area (straddling Galway to Donegal including Roscommon). Conversely the highest rates are for the North Eastern Health Board area and Southern Health Board areas for both males and females (Source CSO).

Cerebrovascular Disease

4.1.9 There have also been significant decreases in the death rates for both males and females at all ages for cerebrovascular disease.

4.1.10 These decreases have been greater than the European Union average at all ages so much so that the differential between the EU average and the Irish rates is no longer statistically significant.

4.1.11 There appears to be no statistically significant differences between geographical regions in the death rates as a result of strokes.

Morbidity

4.1.12 Experience suggests that cardiovascular conditions encourage longer length of stays in hospital and encourage the prescription of drugs that are generally more expensive than for other diseases. Thus, such conditions are considerably more expensive to treat than other diseases.

4.1.13 In addition, certain diseases are extremely complex and divert resources from other areas of care (e.g. heart transplants)

4.2 Cancer

4.2.1 Like cardiovascular diseases there are many different forms of cancers that cause death in Western Europe. There are approximately 200 different forms of cancer that affect the organs and systems of the body. Each form of cancer is unique in terms of its development, cause and response to treatment. However, not all cancers are life threatening. It is only when cancer spreads to one of the vital organs of the body that death may be caused.

4.2.2 Cancer is the second largest cause of death in Ireland. Approximately 23% of all deaths in 1997 were as a result of cancer. The incidence of cancer is higher than the EU average ranking third behind Denmark and Belgium.

Age standardised mortality rates per 100,000 Population
Source (Health Statistics 1999)

Country	All Neoplasms	Cancer of the Trachea, Bronchus and Lung	Cancer of the female Breast
Ireland	209.9	39.0	35.8
EU Average	193.9	39.3	30.8

4.2.3 The incidence varies significantly between males and females.

4.2.4 There appears to be a significant variation in the level of cancer between the various Health Boards areas within Ireland. This, however, depends to a large extent on the type of cancer. For example, certain skin cancers having an high incidence rate in Dublin, Cork and Kerry while a low rate in Carlow, Kilkenny, Limerick, Leitrim, Mayo, Offaly, Tipperary and Wexford (source: Department of Health). Such geographical variations are quite common with many types of cancer throughout the World.

Breast cancer

4.2.5 Ireland has one of the highest incidence rates of breast cancer in Europe.

4.2.6 The trend for the incidence of breast cancer, at the younger ages, is downwards. However, older ages still continue to have a high incidence of such cancer.

4.2.7 The difference in the trend between the age groups could be explained by the introduction of an enhanced breast-screening programme by the Department of Health. This programme screens females at earlier age than heretofore. In addition, breast screening is now available free to all females in the significant risk age groups.

4.2.8 Results from the pilot screening programme introduced by the Department of Health back in 1989 had a detection rate for breast cancer of 7.9 per 1,000 people screened (not age standardised). This is one of the highest detections rates in Europe and shows the high incidence of the disease in Ireland but also how effective such screening programmes can be in providing early detection.

4.2.9 It is still unclear what causes breast cancer. Contributory factors are thought to include alcohol consumption, increasing age and late first pregnancy, late menopause, and having a family history of such diseases. In addition, the incidence of breast cancer, interestingly, is significantly higher in the Western world compared to the developing world.

Factors affecting cancer rates

4.2.10 There is strong evidence that lifestyle and environmental factors can lead to increased incidence of certain types of cancers. Such factors include diet and lifestyle, smoking status and geographic region. Cancer specialists have suggested that it is not any one of these factors that cause cancer rather a combination of these factors.

4.2.11 One telling quote comes from the National Cancer Strategy document:
"It is estimated that tobacco, alcohol and diet, the three major lifestyle factors, contribute to two-thirds of all cancers in Europe."

4.2.12 Smoking causes approximately 90% of all lung cancer deaths each year. It is also a risk factor for many of the cancers of the mouth, head and neck, throat, oesophagus, bladder, pancreas and cervix. It is also important to note that passive smoking is now considered to be a significant contributor to the onset of certain forms of cancer. A more detailed review of the effects of smoking on mortality is covered later.

4.2.13 There is an association between certain types of cancer (liver, bowel, mouth, pharynx, oesophagus, larynx and stomach) and alcohol. However, it has not been possible to recommend the upper limit on what is considered a "safe" level of alcohol consumption.

4.2.14 Consumption of a range of vegetables and fruit is, generally, consistent with a reduction in cancer of certain types. Diet affects the onset of cancer of the colon, rectum and breasts.

Morbidity

4.2.15 Treatment for cancer is largely based on surgery, radiotherapy or chemotherapy. The general rule is that the earlier the treatment of the cancer the more likely it is that the treatment will be successful. Current thinking on the provision of cancer services is thus to encourage earlier detection.

4.2.16 Treatment is provided either on a day care or hospital basis. One of the main issues for policymakers in developing a cancer strategy is to ensure that there is a regional balance in terms of providing such services as the period of treatment is likely to be lengthy.

4.2.17 This is clearly demonstrated by the fact that for certain illness significant proportions of patients survive 5 years from the onset of such an illness. For example, 67% (source: Coebergh) of breast cancer patients survive in excess of 5 years.

4.3 Respiratory Diseases

4.3.1 The table below from the WHO database compares age standardised (WHO world population) mortality rates for respiratory diseases.

		Males	Females	Total
Austria	1996	34.5	15.0	22.2
Belgium	1994	80.5	27.0	47.0
Denmark	1996	66.8	48.2	54.8
Finland	1996	71.7	30.1	44.5
France	1996	48.3	21.8	32.1
Germany	1996	52.4	21.2	32.2
Greece	1996	35.9	22.0	28.3
Ireland	1996	114.8	72.7	89.5
Italy	1995	45.5	16.5	27.7
Luxembourg	1996	58.4	23.4	35.8
Netherlands	1996	74.4	31.5	46.9
Portugal	1996	77.2	34.6	51.6
Spain	1995	73.2	26.2	45.0
Sweden	1996	46.7	27.2	34.6
United Kingdom	1996	101.5	63.6	77.7

4.3.2 As can be seen Ireland is definitely the worst for both females and males.

4.3.3 Respiratory diseases comprise Pneumonia, Influenza and "Bronchitis, Emphysema and Asthma". Male deaths from respiratory causes split 80.0%, 0.4% and 19.6% respectively. Female deaths split 86.6%, 0.8% and 12.7% respectively. So in both genders it is pneumonia that is the most important.

4.3.4 For both males and females, respiratory diseases only start becoming major killers in the age groups above 75. They are often the diseases that finally kill when the person is already frail. People may enter care with another condition and yet die of pneumonia.

4.3.5 We have examined the trend of the rate of pneumonia over the period 1962 to 1996. We found that for age group 65-74 the rate rose but has since fallen and is now below the 1962 starting point. The 75-84 group has risen and fallen but remains above our starting point. The age 85 plus has risen and not fallen. This is true in each case for both sexes.

4.3.6 This behaviour might be consistent with a cohort effect but if this is a measure of frailty then why are the rates going up?

4.3.7 It is likely that smoking will have an effect upon respiratory diseases so perhaps we are observing a cohort effect of smoking patterns. However given that there used to be wider differentials in smoking patterns between the sexes it seems unlikely that this would then show the same pattern for each.

4.3.8 Reverting to the frailty concept are we seeing in the cohort effect a reflection of all that happened to that cohort over its life?

4.3.9 In any case it seems possible that the waves of future cohorts may bring down rates and particularly as the golden group born in the 1930's will be entering critical ages soon.

4.3.10 None of this answers the question of why is Ireland's comparative position so poor. It is interesting that the next worst is the UK but otherwise the country comparison does not show any clear climatic differentials. For example there a sharp difference between Sweden and Finland.

4.3.11 As these diseases kill those already weak there could be an issue around reporting. If for example somebody with a weak heart dies with pneumonia could there be cultural preference to which is ascribed to be the cause of death? This may merit future research.

4.3.12 The other possibility that suggests itself is that Ireland and the UK's social structures and attitudes are similar. Mortality differs by socio-economic class and this is discussed later in this report. Is this high rate some reflection of the position or the treatment of the elderly in Irish society? Again more research would be needed to establish such a controversial fact but again it seems warranted.

4.4 Road Traffic Accidents

4.4.1 Irelands road safety performance over the past 30 years has shown considerable improvement. Appendix 4 shows the decline in the number of fatal accidents (but see our comments below). "The Road to Safety", the government strategy for road safety, attributes the better experience to road and vehicle improvements, better road safety enforcement and public campaigns. The positive change in public attitude to drinking and driving has also contributed to the improvement.

4.4.2 Despite this improvement, our road safety record is poor compared to many other European countries.

European Union Fatality Rate per 100,000 population - 1997 data

Portugal	25.6
Greece	20.4
France	15.1
Spain	15.1
Belgium	14.7
Luxembourg	13.4
Ireland	12.4
Austria	11.4
Italy	11.0
Germany	9.5
Denmark	9.4
Finland	7.8
Netherlands	6.8
United Kingdom	6.0
Sweden	6.0

Source: Road Accident Facts Ireland 1999

4.4.3 Appendix 4 also shows a breakdown of all casualties in 1999 by age, sex and road user type. In 1999 over half of all people killed were car users, almost one quarter were pedestrians and one tenth were motor cyclists.

4.4.4 The greatest number of deaths occur in the 25-34 age band and the second largest number occur in the over 65 age band. The greatest number of pedestrian death are in the over 65 age band. There are also large variations by sex. While just over 56% of pedestrian deaths are male, over 75% of car driver deaths and almost 90% of motor cyclist deaths are male.

4.4.5 "Road Accident Facts Ireland 1999" published by the National Roads Authority quotes Garda Statistics which identify drivers as the contributory factor in 81% of accidents, pedestrians in 11%, roads in 3%, environment in 3% and vehicle in 1%.

4.4.6 The "Road to Safety" states that excessive speed and alcohol are the most common contributory factors to road accidents in Ireland. In 1996, 41% of fatal accidents were put down to excessive speed. It is also estimated that alcohol was a contributory factor in 33% of all fatal accidents.

4.4.7 This report also notes that current seat belt wearing rates of 55% may save up to 40 lives a year and increasing this rate to 85% could increase this by a further 30 lives. It also notes that injury accidents predominantly (76.6%) occur on two single carriageway roads. Motorways and dual carriageways are relatively safer. Therefore continued investment in roads should further reduce number of deaths.

4.4.8 The key policies and actions identified in "The Road To Safety" are:

- To extend use of automatic speed detection
- To commence evidential breath testing for drink driving
- To extend on the spot fines to non-wearing of seat belts
- To develop penalty points system which would trigger disqualification following repeated driving offences

4.4.9 We would comment that although there has been a decline since the 1970's (evidenced in the graph in Appendix 4) the progress since 1984 has been less clear, varying a great deal but not trending down. With this being a source of so many lost years', we would urge the government to take the actions it has itself identified.

4.5 Suicide

4.5.1 The incidence of male suicide is over five times higher than that of female suicide. But while it is characterised as a young man's problem the rates for the peak age band (25-34) are just short of twice those at age 85 and over (and do not exceed twice the rate for any adult age band except 65-74).

4.5.2 The rate has risen sharply over the period of examination. This is chillingly expressed by showing the actual number of deaths for the past ten years (source Vital Statistics).

Year	Number of Deaths
1987	245
1988	266
1989	278
1990	334
1991	346
1992	363
1993	327
1994	395
1995	404
1996	409

4.5.3 Some of this increase is likely to be due to a greater likelihood of suicide being reported as such. There have been social and/or religious reasons for non-reporting of suicide and these may have declined in recent years. That said, an examination of Table XL in 1996 Vital Statistics shows only one likely substitute cause showing a comparable decline. That is "Other accidents and external causes" which has fallen from 200 cases in 1988 to 153 in 1996 (the 1987 figure appears to be an outlier) so we would suggest that perhaps a third of the rise in the period is due to increased reporting.

4.5.4 The Samaritans web-site gives a figure of 504 for 1998.

4.5.5 International comparisons reveal very large differences in rates. Health Statistics 1999 (3) contains a Table for the EU countries for age standardised rates (as per WHO Standard European population). Unfortunately the year of data is not the same for all countries so we show this for reference (WHO also have information for world population standardised rates, split by sexes, and this is contained in Appendix 5).

Country	Year of Data	Rate per 100,000
Austria	1997	17.8
Belgium	1992	17.2
Denmark	1996	15.5
Finland	1995	26.1
France	1995	18.7
Germany	1997	13.2
Greece	1996	3.1
Ireland	1997	11.9

Italy	1993	7.2
Luxembourg	1997	18.0
Netherlands	1996	9.5
Portugal	1996	5.9
Spain	1995	7.2
Sweden	1996	13.1
United Kingdom	1997	6.7
EU Average	1996	11.3

4.5.6 It is hard to resist the idea that the rates are dependent on latitude and perhaps on hours of sunshine. Greece, Portugal, Italy and Spain are 4 of the 5 lowest and Finland the worst. But how then to explain the UK being half Ireland's rate or Sweden's being half that of Finland's? We must also bear in mind that cultural factors will influence both the level of suicide and the reporting of suicide.

4.5.7 It is also interesting to compare suicide rates with the rates of different regions in the UK. The table below (source Samaritans web-site) compares crude rates per 100,000. Figures are for 1998.

	Males	Females
England	19	6
Northern Ireland	18	6
Republic of Ireland	30	6
Scotland	32	10
Wales	21	6

4.5.8 It would be easy to say that the increase is all down to more accurate reporting and that Ireland is not substantially worse than the EU average. We reject such a view. We have suggested in 4.5.3 that much of the rise may be genuine. We note the vast difference to our neighbours in the north.

4.5.9 From analysis of age specific rates it seems that suicide in Ireland affects younger ages more than in other countries (same pattern for Scotland). This means that its impact will be comparatively greater in terms of years lost.

4.5.10 We believe that society should be doing all it can to reverse the worrying suicide trends..

4.6 AIDS

4.6.1 AIDS is the most extreme condition that does not of itself kill but affects the mortality of those who suffer from it. In the early years of its discovery, infection with HIV led inevitably to AIDS and that led inevitably to death from some other cause once the immune system no longer defended the body.

4.6.2 The Joint United Nations Programme on HIV/AIDS performs a study each year in partnership with WHO tracking trends in the incidence of HIV/AIDS. The data shows that for the period 1996 - 1999, 35.9% of all cases of AIDS reported in Ireland were among injecting drug users (IDU). The homosexual/bi-sexual population accounted for 37.5% of cases over the same period. Comparing this to the UK (8.8% and 53.7% respectively), it is interesting to note the marked difference in infection rates among IDU's.

4.6.3 In Appendix 3, we show the numbers of diagnoses of and deaths "from" AIDS in Ireland, the UK and the USA. Each graph shows the same picture; low levels in the early eighties; rapidly rising to a peak in the early to mid nineties with dramatic falls since then.

4.6.4 The reason for the fall is that drug treatments have been developed which at least slow the progression of HIV to full blown AIDS leading to either a deferment or possibly a prevention of AIDS.

4.6.5 In Appendix 3 we also show graphs of the numbers of HIV diagnoses in Ireland and the UK. The figures for the year 2000 are for the first two quarters only and do not represent a fall. They both show upward trends, though the UK's is less pronounced than Ireland's.

4.6.6 This has led to a new catastrophe theory. As the scare publicity around AIDS has reduced, this has led the public (and particularly the young public) to believe it is not an issue. The controlling of the progression of HIV to AIDS also leads to more infectious people in the population. Sexual behaviour is perceived by some to have become more promiscuous. This means (goes the argument) that infections will rise dramatically. The drug treatments will only defer the onset of AIDS leading to much greater incidence in the future.

4.6.7 The working party believes that, while this is indeed a possible scenario, caution must be exercised in prophesying doom. In particular, the hypothesis of treatments simply deferring death by a fixed number of years with no future improvements in medical treatments possibly seems unlikely.

4.6.8 Nevertheless, the trend is disturbing and merits some quantification of the problem. Assuming an age at death of 35 for all those 209 cases infected in 1999 would lead to lost years of life (on a fixed expectancy of 85) of just over 10,000 for Ireland. It is thus not amongst the most significant diseases. However if the trend continues upward, it will soon be much more prominent. Given that there are significant periods of disability prior to death, using healthy years lost would then show an even greater relative importance.

4.6.9 There is also the economic impact to be considered. The drug treatments are expensive and HIV treatment will consume health resources.

4.6.10 While wishing to stress that there are dangers in crying wolf, the working party feels that there is a significant health issue around the growth in HIV infection.

4.7 Smoking

4.7.1 Smoking is the best known risk factor that affects health and survival. The evidence that smoking contributes to early deaths is sufficient to make this a certainty. We shall quote some of this.

4.7.2 Peto (4) in a truly massive study produces some disturbing figures. To quote "Over the 50 year period between the year 1950 and the year 2000 smoking will cause a total of about 60 million deaths in developed countries". This has been calculated by considering the base rates of lung cancer mortality in US non-smokers and considering any excess above this to be due to smoking. They used this to interpret other deaths caused by smoking. The figure of 60 million is split 50 male to 10 female and 40 middle aged to 20 old aged.

4.7.3 A further finding is that 24% of male premature deaths and 7% of female premature deaths will be due to smoking in that period.

4.7.4 Figures for deaths and years lost in Ireland are given in this table from their study.

IRELAND :1995 projections
Relative importance of deaths in MIDDLE age (35-69)
Deaths attributed to Smoking / Total deaths ('000's)

Age Range (years)	Males	Females	Mean years lost PER DEATH FROM SMOKING
0-34	-/1.0	-/0.6	-
35-69	1.3/4.9	0.6/2.9	21 years
70+	2.4/9.8	1.6/9.7	8 years
All Ages	3.7/16	2.2/13	12 years

4.7.5 Another study CPS-II (5) was carried out by the American Cancer Society which examined the issue over a sample size of over a million adults. Results of excess mortality are also quoted in Peto.

Smoking and Death in middle age, US MALES.
ACS million-person prospective study, 1984-88
Mean Annual Mortality Rate per 100,000 males aged 35-69

Underlying Cause of Death	Never Smoked Regularly	Current Cigarette Smoker	Excess rate in Smokers
Lung Cancer	8	196	188
Mouth, Larynx, oesophagus	5	28	23
Other cancer	109	188	79
Respiratory	9	62	53
Vascular	176	446	270
Other medical	39	81	42
(Cirrhosis, suicide, homicide, accident	(37)	(81)	(44)
ALL CAUSES	382	1083	701

4.7.6 Interestingly the study found that although the lung cancer rate increased over twenty-fold and heart disease "only" three fold, because heart disease is much more important, smoking kills more from heart disease than lung cancer.

4.7.7 The Society of Actuaries in Ireland study of Irish Insured Life Mortality (6) found that mortality for smokers was just under twice that of non smokers. The actual ratios are 191% for males and 178% for females. It has been suggested that a life expectancy difference of 7 years given in this report may underestimate the true figure.

Smoking in Ireland Compared to Other Countries

4.7.8 The Table below is an extract from data from WHO (7) (appearing in Manninen (8)) of percentages of various populations smoking (1993-1994).

Country	Men (%)	Ranking	Women (%)	Ranking
Spain	48.0	27	26.0	26
Greece	46.0	29	28.0	10
Austria	42.0	38	27.0	14
France	40.0	42	27.0	14
Italy	38.0	55	26.0	18
Portugal	38.0	55	15.0	47
Denmark	37.0	60	37.0	1
Germany	36.8	61	21.5	35
Netherlands	36.0	63	29	7
Luxembourg	32.0	70	26.0	18
Belgium	31.0	72	19.0	40
Ireland	29.0	75	28.0	10
U.K.	28.0	77	26.0	18
Finland	27.0	80	19.0	40

4.7.9 This shows Ireland to be comparatively low for males but high for females. Denmark apart it appears to have the closest smoking rates between the sexes.

Trend

4.7.10 Manninen also provides trend data that shows that smoking has fallen over recent years.

Year	16-24 years	Males	Females	Total
1972-3	48%	49%	37%	43%
1993-4	29%	29%	28%	29%

4.7.11 However this improvement took place up until the mid-eighties. Since then levels have remained relatively flat. Nicorette carries out its own research and last year announced that the proportion had risen to 33%, though its web-site still gives the rate at 30%.

4.7.12 The evidence for the health implications is overwhelming. Campaigns to discourage smoking are frequent but smoking continues. One reason is that it is very hard to quit. According to the Cancer Society (quoted by RTE 2-2-01) 30% of smokers attempted to quit on national no smoking day, 1% were still off cigarettes after two months. The other reason is that new smokers come from the young population to replace the quitters and the early deaths.

4.7.13 The Government has announced further measures and we hope they will show some success.

6. Morbidity and Quality of Life

6.1 We have not found data immediately available on sickness that allows the comparisons we have made on mortality. While we are aware of data available from the Hospital In-patient Enquiry (HIPE), which records information of episodes of care in publicly funded hospitals, we have not investigated possible analysis using this data.

6.2 There are also other problems with evaluating sickness. Progressively earlier detection may cause a rise in incidence without reflecting a real change. Cross-country comparisons may be distorted by difference in diagnosis practice.

6.3 Faced with these issues any work on trends and comparisons fall into the subjects for future research category. We have though insights that we believe are valuable.

Relationship between Mortality and Morbidity

6.4 With the growing span of life, a question that has arisen is whether the extension is achieved without increasing the healthy span of life. The much discussed ageing population issue envisages greater numbers in care.

6.5 In Appendix 2, we table both healthy years and total life expectancies for a number of "first world" countries. This shows that the period of disablement is independent of life expectancy, which provides some evidence that longer life expectancy also means longer healthy life expectancy.

6.6 The data on disabled life expectancy in the UK are difficult to interpret, with some sources appearing to contradict others (see discussion by Walsh and Rickayzen, ref (14)). The overall picture appears to be that people spend an increasing amount of time with some form of disability but a constant amount of time with severe disability. In the US there have been reports that the rate of chronic disability and institutionalisation has fallen substantially (Manton et al, ref (15)).

Mental illness

6.7 Mortality measures, including years' lost, take very little recognition of mental illness as (apart from suicide) it doesn't kill. The Australian Burden of Disease study into DALY's (disability adjusted life years) showed mental illness to be a very significant issue.

7. Socio-Economic Factors

7.1 It is a well-known fact that mortality varies with socio-economic group ("SEG") with the better off living longer.

7.2 There are a great number of reasons why this might be the case. Here are some of them: -

a. Better diet
b. Less Smoking
c. Better health education
d. Better access to healthcare
e. Warmer houses
f. Health may lead to Wealth (or lack of health to lack of wealth)

7.3 While we are not aware of direct studies in Ireland on this topic but can point to studies from elsewhere and to differences between insured life and population mortality. O'Shea (1) found that data on occupation of decedents was not appropriate for measuring socio-economic group.

7.4 In the UK it is very clear that mortality rates are strongly dependent on social class. The differential is widening, see reference (16) for a recent summary. For males the difference in life expectancy between social classes I and V is 9.5 years, and for females it is 6.4 years. The manual social classes lose more years of life than the non-manual classes from heart disease, cancer and accidents and violence. Some differences are attributed to childhood deprivation but others to adult social circumstances.

7.5 The WHO 2000 report has no doubt on this issue. *"The report finds that inequalities in life expectancy persist and are strongly associated with socio-economic class, even in countries that enjoy an average of quite good health. Furthermore the gap between rich and poor widens, when life expectancy is divided into years in good health and years of disability. In effect the poor not only have shorter lives than the non-poor, a bigger part of their lifetime is surrendered to disability".*

Comparison of Insured and Population Mortality

7.6 One illustration of the large differences in mortality between different groups in Ireland is to compare Insured and Population mortality.

7.7 The Society of Actuaries in Ireland has prepared a study of insured lives mortality in Ireland (reference (6)) covering the period from 1995 to 1997. This is compared to the information in Vital Statistics 1996. A little manipulation is required to make the figures comparable but the results are as follows, expressed as deaths per 100,000. (We have also shown UK figures)

Ireland

	Males			Females		
	Insured	Population	Ratio	Insured	Population	Ratio
25-34	58.4	132.2	2.3	28.2	47.5	1.7
35-44	75.3	169.8	2.3	63.7	94.0	1.5
45-54	242.1	427.1	1.8	183.7	265.5	1.5

UK

	Males			Females		
	Insured	Population	Ratio	Insured	Population	Ratio
25-34	47.6	91	1.9	20.5	43	2.1
35-44	78.8	171	2.2	42.4	108	2.5
45-54	197.1	429	2.2	103.0	273	2.7

Insured data — AM92 and AF92 (permanent assurances, males and females) based on experience 1991 to 1994 for UK. Population data — 1992 rate for England and Wales.

7.8 Insured lives mortality may be lower than the comparative population rate for two reasons: -

a. Initial selection by life offices to eliminate the higher risks.
b. The insured lives come from more healthy socio-economic groups.

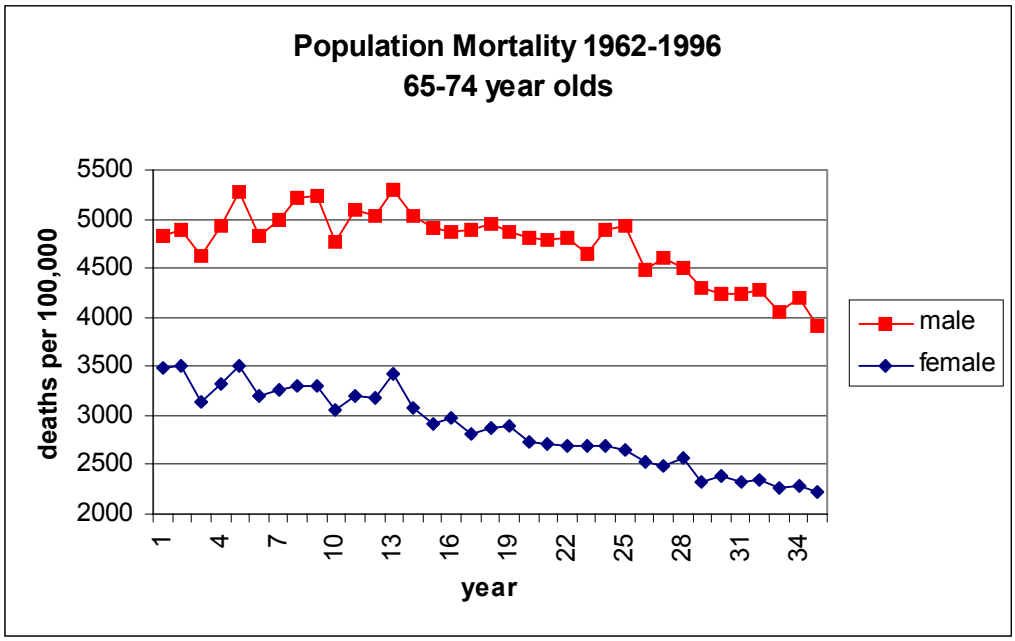
If we are trying to gauge the latter then we need to remove the effect of the former.

7.9 The figures used in the Insured lives study are already ultimate of period 2 plus. It is generally accepted that select periods last much longer than this with ten years being a possibility. In the 1980 study of UK Insured mortality a five year select period is also presented in addition to the two year normally used. Comparison of the two and five year figures shows an uneven pattern but suggest that they might be 5% different. We would guess on this basis that the total residual selection effect would account for around 10%. We should point out that we felt this figure "feels" too low which may well be due to its very approximate nature.

7.10 Even if we were to double or quadruple our estimate for the selection effect there would still remain a very large element of difference due to socio-economic group. This should not be taken purely as difference between those who can afford insurance and those who cannot. The taking out of insurance may be an indication of more cautious behaviour. The comparison of population versus insured might reinforce our belief that there are SEG differences but it is not proof.

7.11 We can also examine annuity mortality. The Irish Life study of annuitant mortality contains some interesting data. Firstly the experience shows very marked inverse correlation between size of annuity and mortality. For example the year 2000 experience shows annuities of less than IR£2000 having 30% worse mortality than those with annuities of more than IR£5000.

7.12 Even more interesting is the trend shown in the study, which shows an annual rate of improvement for the 65 to 80 age band of 6.1 % p.a. This is higher than the improvements in population mortality, which are shown in the table below. It is hard not to conclude that differences in mortality by socio-economic group are growing.



7.13 Before jumping to conclusions on mortality differences by socio-economic group, it is however necessary to consider the causes of the difference a little further. Some is elective, e.g. smoking is thought to vary by SEG. There is also a question of health having an effect on prosperity.

7.14 There is also an analogy with wealth to consider. Often we hear about the gap between rich and poor widening. One might argue that it is irrelevant to poverty that there are rich people but there is an implicit undertone to such gap figures that the wealth is there so why can it not be redistributed? Is it the case that the better off prolong their lives by consuming more than a proportionate share of health resources? We doubt that this is the most important factor.

What Can be Done?

7.15 Ireland has recently being undergoing huge social change particularly in economic matters. Unemployment has fallen substantially and we have moved up table of comparative wealth between countries. This is unlikely to have influenced the 1996 Vital statistics much as there is likely to be a delayed effect. It may be that we are likely to see more improvements soon and these might show a narrowing of SEG differences. Indeed might it be that our comparatively poor performance mentioned in Section 2 might be partly due to comparative lack of cash?

7.16 If the mortality gap closes over the few years then the economic success, which we chase for other reasons may be the reason. On the other hand will the SEG differences widen? We believe that this is worth knowing. We recommend that some way is found of monitoring the SEG mortality differential.

7.17 Simply knowing the differential is not enough. We will then need to analyse and discover the reasons for the changes. For example it would be very useful to know how much of the differential is due to smoking. Until we have the data however we cannot begin to analyse.

7 The Future

7.1 In general there seem to be some good reasons to be optimistic about the trend in mortality.

- Economic growth is likely to contribute to longevity
- The cohort effect is about to reach the 60+ age group that so far has not benefited
- The developed world as a whole is showing improving trends

7.2 We also believe that this improvement will involve more years of quality life and not extension of disability and sickness.

7.3 We have noted that many of the areas we have examined are already receiving attention from the state. This gives us cause to hope that areas where Ireland has comparatively poor experience may improve.

7.4 We must point to the area of young male mortality with some concern. We have no reason why the worsening of mortality rates should reverse. This may be more than a purely medical issue. Aids may in fact worsen matters. Again though there is cause for hope in the attention that these issues now receive. There is no reason why Ireland cannot improve to the levels experienced by its neighbours.

7.5 The much talked about ageing of our population may conceal a hidden positive side. We may have many more years of productive life. In mortality terms the old are getting younger.

Appendix 1 References

Throughout we have drawn upon

(A). Vital Statistics; Compiled by the Central Statistics Office on behalf of the Department of Health and Children; most recent available is 1996 but we have looked at editions ranging back to 1962.

(B). WHO ; The WHO have published a report on World Health for the year 2000 but more importantly we have drawn upon the extensive data it makes available on its web site. Any deductions, calculations or opinions drawn are ours and not in any way those of the WHO.

More specific references

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(5) American Cancer Society; "Second Cancer Prevention Study"
(6) Gareth Colgan; "Report on Mortality Experience of Irish Assured Lives"; December 1999. This is not in public domain.
(7) WHO; "Tobacco or Health: A Global Status Report" 1997
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(14) Walsh, D.E.P and Rickayzen, B.D. A Model For Projecting The Number Of People Who Will Require Long-Term Care In The Future, Part 1, City University Actuarial Research Paper 123, July 2000.
(15) Manton, K.G., Corder, L. and Stallard, E. Chronic Disability Trends In Elderly United States Populations: 1982–1994. Proceedings Of The National Academy Of Science, vol 94, 2593-98, 1997
(16) Hattersley, L. Trends In Life Expectancy By Social Class — An Update. Office For National Statistics, Health Statistics Quarterly, Summer 1999.
(17) National Roads Authority, "Road Accident Facts – Ireland 1999"
(18) Global Burden of Disease websites
(19) Coebergh, JWW, "Survival of Cancer Patients in Europe: The Eurocare Study", (IARC Scientific publications No. 132, Lyon, 1995)
(20) Department of Health Ireland, "Cancer Services in Ireland: A National Strategy (1996)"

Appendix 2 Does living longer mean more years of disability?

A2.1 The tables below show disability adjusted life expectancy (DALE) versus normal life expectancy for different countries. DALE is a measure developed by the WHO to summarise the expected number of years lived in full health.
The list below is of countries that might be thought comparable to Ireland (i.e. "first world") with exclusions of some countries for which data is not available.

Comparison of DALE and Ex

		DALE				Ex			Disability	Years	
Rank	WHO Member State	Total	Male	Female		Total	Male	Female	Total	Male	Female
1	Japan	74.5	71.9	77.2		80.5	77	84	6.0	5.1	6.8
2	Australia	73.2	70.8	75.5		78.0	75	81	4.8	4.2	5.5
3	France	73.1	69.3	76.9		78.0	74	82	4.9	4.7	5.1
4	Sweden	73.0	71.2	74.9		78.5	76	81	5.5	4.8	6.1
5	Spain	72.8	69.8	75.7		77.5	74	81	4.7	4.2	5.3
6	Italy	72.7	70.0	75.4		77.5	74	81	4.8	4.0	5.6
7	Greece	72.5	70.5	74.6		77.5	75	80	5.0	4.5	5.4
8	Switzerland	72.5	69.5	75.5		78.5	75	82	6.0	5.5	6.5
12	Canada	72.0	70.0	74.0		78.0	75	81	6.0	5.0	7.0
13	Netherlands	72.0	69.6	74.4		77.0	74	80	5.0	4.4	5.6
14	United Kingdom	71.7	69.7	73.7		76.5	74	79	4.8	4.3	5.3
15	Norway	71.7	68.8	74.6		77.0	74	80	5.3	5.2	5.4
16	Belgium	71.6	68.7	74.6		76.5	73	80	4.9	4.3	5.4
17	Austria	71.6	68.8	74.4		76.5	73	80	4.9	4.2	5.6
18	Luxembourg	71.1	68.0	74.2		76.5	73	80	5.4	5.0	5.8
19	Iceland	70.8	69.2	72.3		77.5	75	80	6.7	5.8	7.7
20	Finland	70.5	67.2	73.7		76.5	73	80	6.0	5.8	6.3
21	Malta	70.5	68.4	72.5		76.5	74	79	6.1	5.6	6.5
22	Germany	70.4	67.4	73.5		76.5	73	80	6.1	5.6	6.5
23	Israel	70.4	69.2	71.6		78.0	76	80	7.6	6.8	8.4
24	United States of America	70.0	67.5	72.6		76.0	73	79	6.0	5.5	6.4
27	Ireland	69.6	67.5	71.7		75.5	73	78	5.9	5.5	6.3
28	Denmark	69.4	67.2	71.5		75.5	73	78	6.1	5.8	6.5
29	Portugal	69.3	65.9	72.7		74.5	71	78	5.2	5.1	5.3
30	Singapore	69.3	67.4	71.2		76.0	73	79	6.7	5.6	7.8
31	New Zealand	69.2	67.1	71.2		76.5	74	79	7.3	6.9	7.8

- The first 3 columns show the DALEs for the top countries as ranked by the WHO. Japan has highest disability free life expectancy.

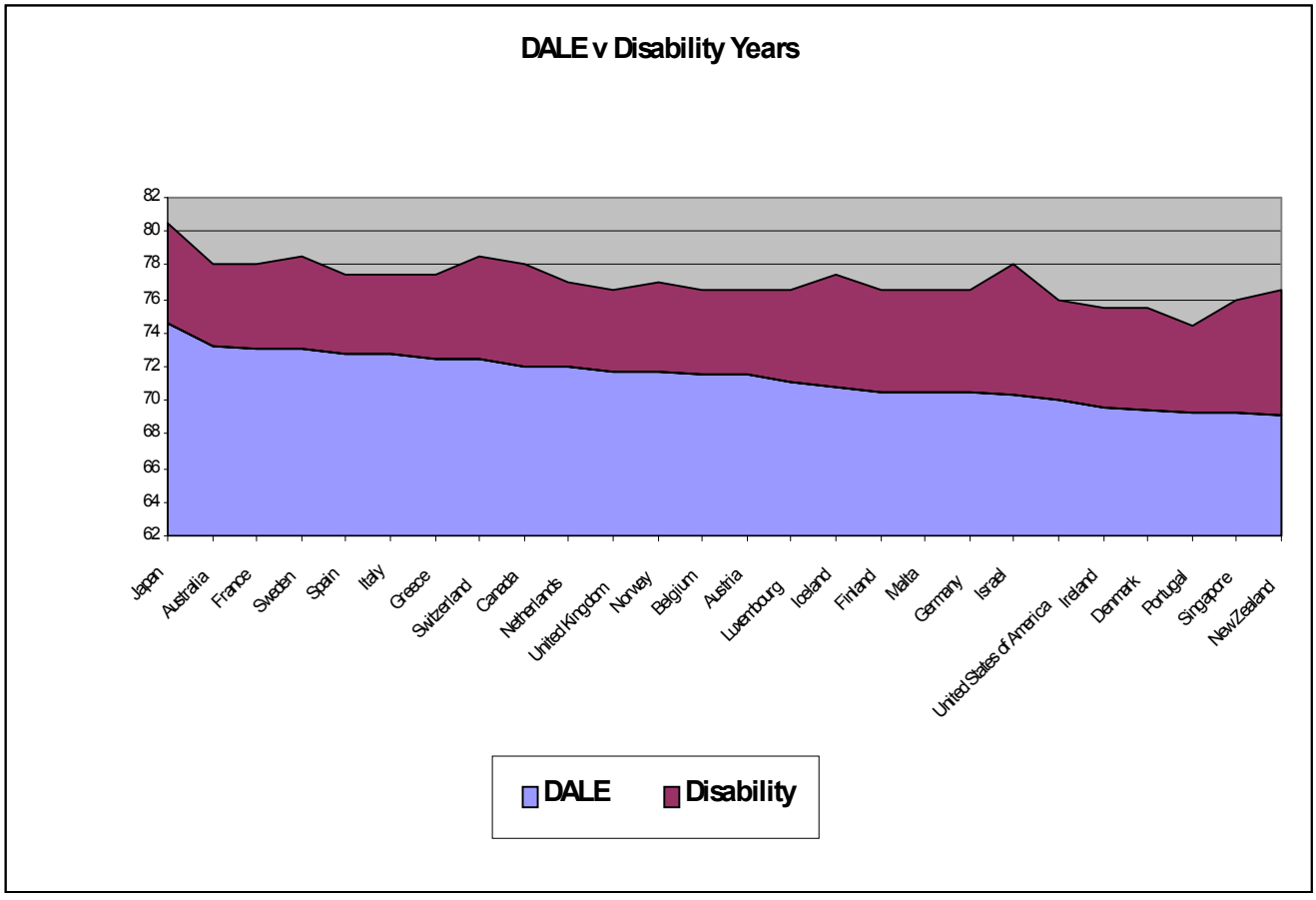
- The next 3 columns show normal life expectancy. Unfortunately this is not available to the same number of decimal places as the DALEs.

- The last 3 columns show the expected number of years in disability as the difference between the first 2 columns.

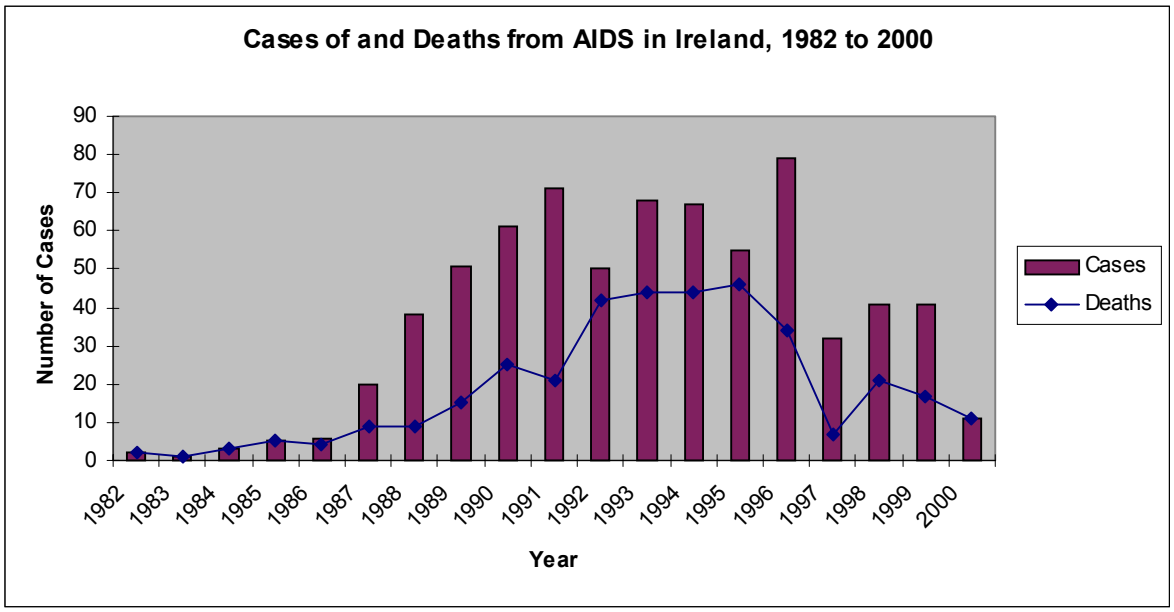
- The data above suggests that higher life expectancy does not mean prolonged disability. If we run a linear regression of the number of years disability against the full life expectancy we get r of 0.037 for males and –0.082 for females, which suggests that the two are uncorrelated.

- It is worth pointing out that the way that WHO data is obtained from different countries may not be entirely consistent. The figures for life expectancy may not be distorted by much but disability being much less objective may be subject to distortion.

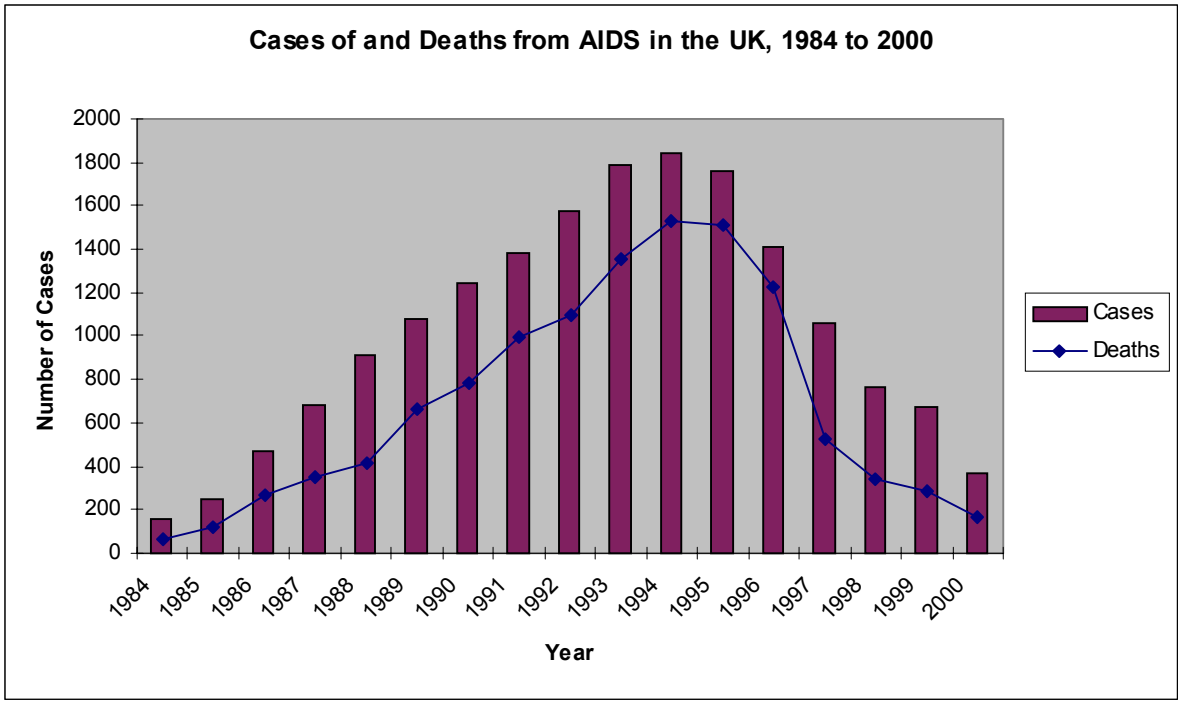
- Nevertheless we suggest that there is some reason to suppose that prolonging life may equate to prolonging healthy life.



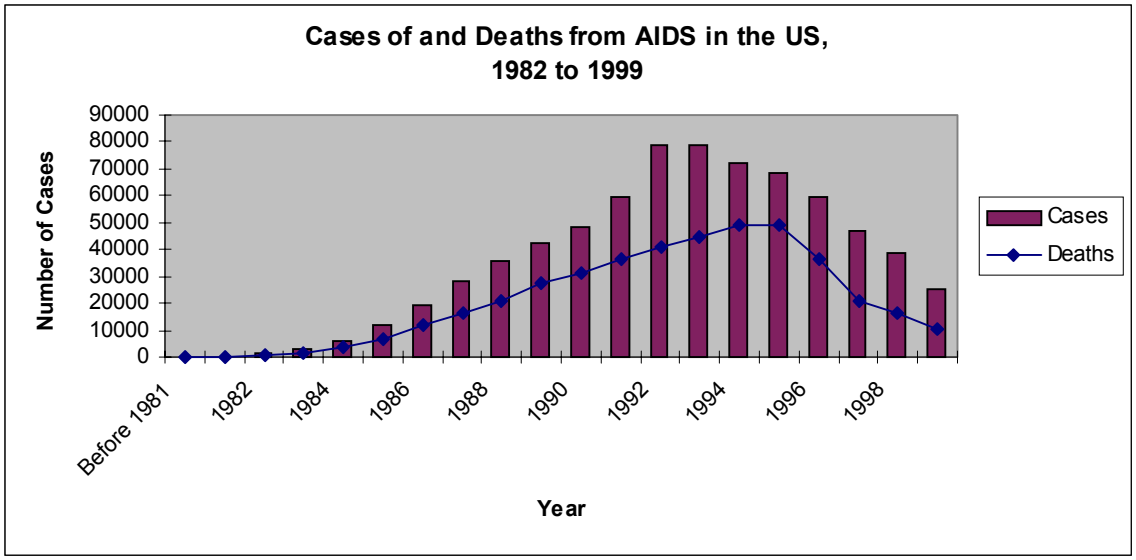
Appendix 3 Graphs of AIDS and HIV Incidence.



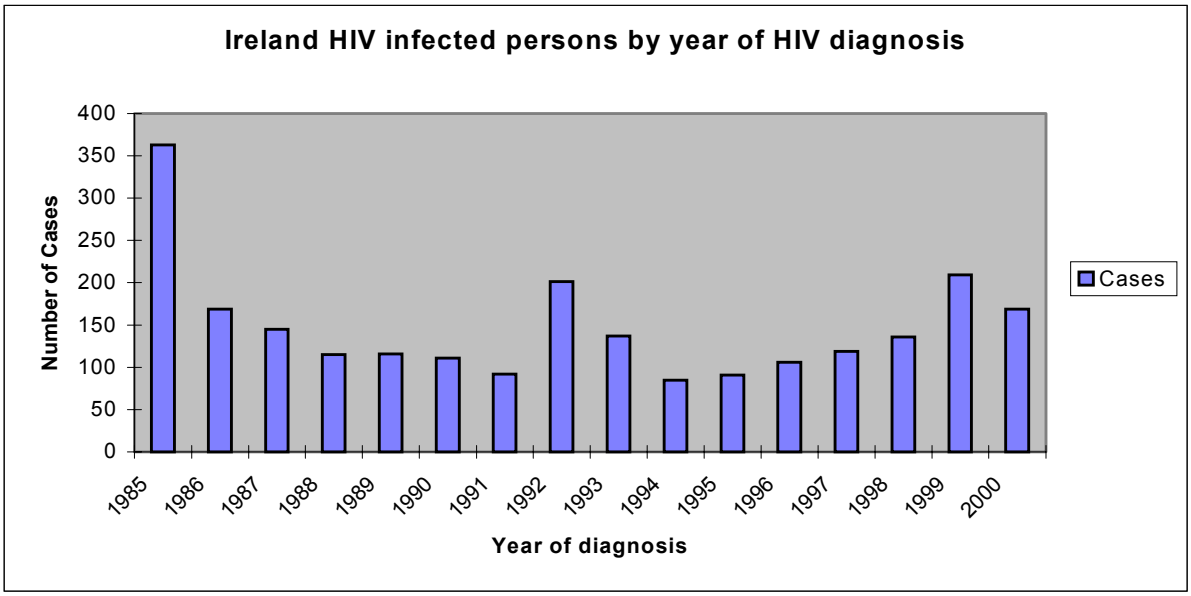
Source: Department of Health and Children, Health Statistics 1999 (updated until June 2000)



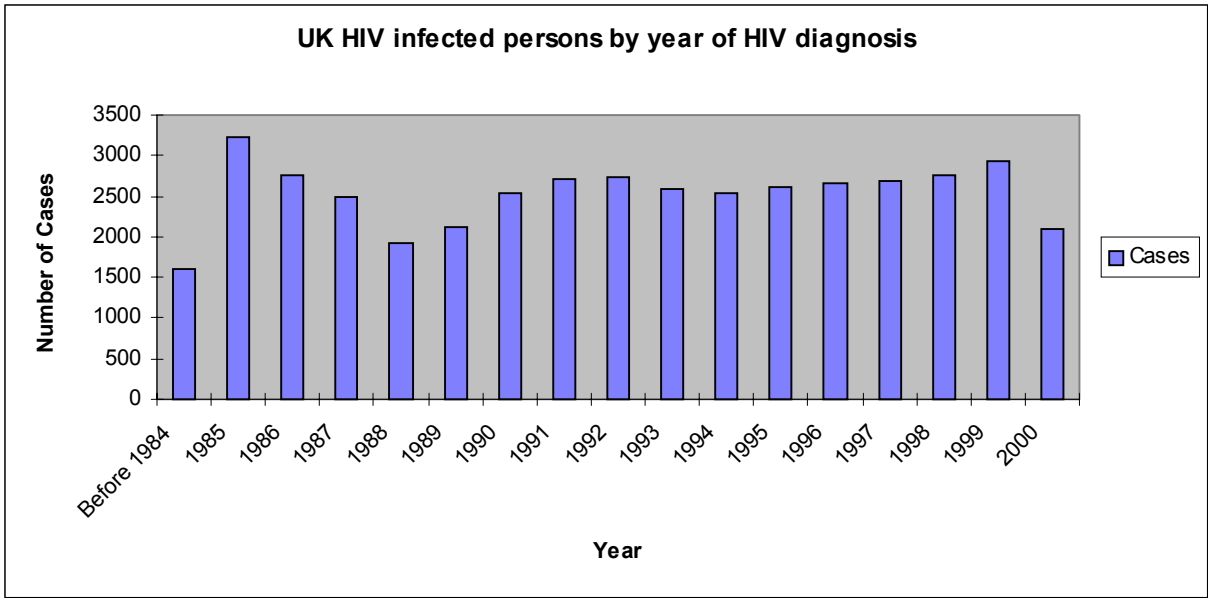
Source: Public Health Laboratory Service AIDS Centre and the Scottish Centre for Infection & Environmental Health.
Figures for 2000 are reported for the first three quarters of the year.



Source : U.S. Department of Health and Human Services



Source: Department of Health and Children, Health Statistics 1999 (updated until June 2000)



Source: Public Health Laboratory Service AIDS Centre and the Scottish Centre for Infection & Environmental Health
Figures for 2000 are reported for the first 2 quarters only,

Appendix 4 Data on Road Traffic Accidents

Road Deaths 1999

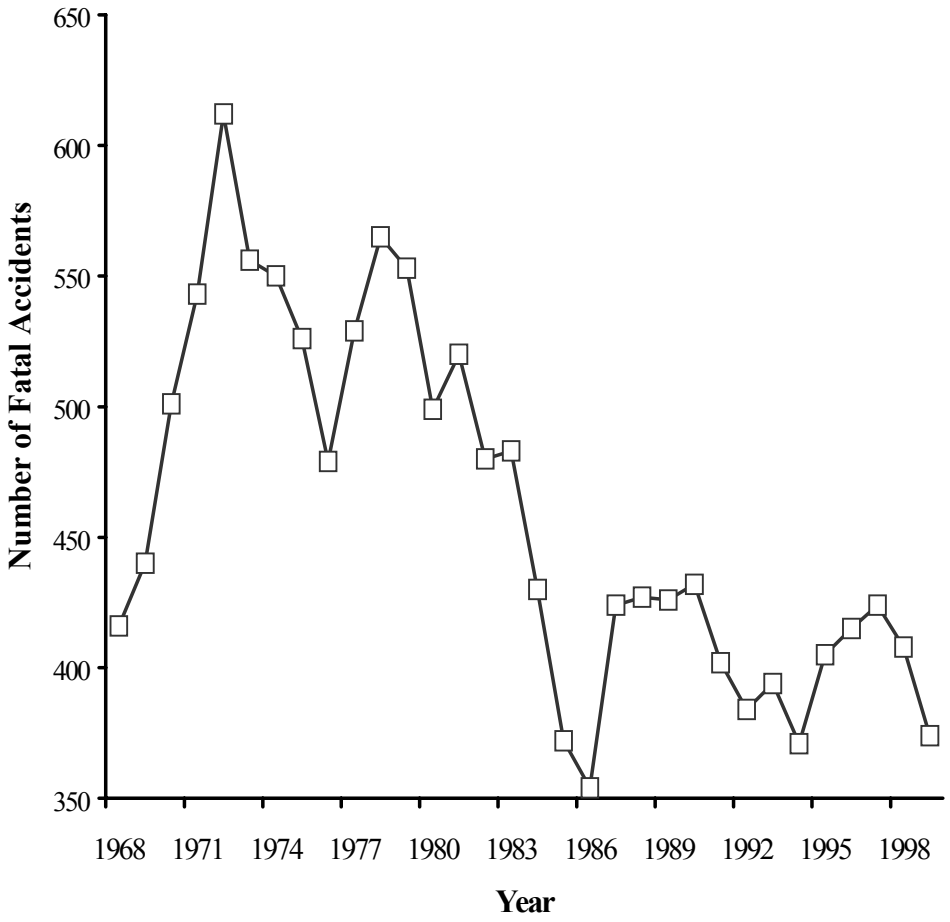
	Pedestrians		Pedal Cyclists		Motor Cyclists	
Age Groups	All	Male	All	Male	All	Male
0-5	3	2	0	0	1	0
6-9	4	2	0	0	0	0
10-14	3	1	3	3	0	0
15-17	2	0	0	0	1	1
18-20	7	6	0	0	8	6
21-24	4	2	0	0	6	5
25-34	4	3	0	0	18	18
35-44	8	5	3	2	6	5
45-54	9	4	4	3	0	0
55-64	11	7	0	0	1	1
65 and over	30	15	3	2	2	2
Unknown	7	5	1	0	0	0
Total	92	52	14	10	43	38

	Car Drivers		Car Passengers		Total Car Users		Other Road Users	
Age Groups	All	Male	All	Male	All	Male	All	Male
0-5	0	0	2	0	2	0	1	1
6-9	0	0	3	2	3	2	1	1
10-14	0	0	1	1	1	1	1	1
15-17	2	2	11	8	13	10	0	0
18-20	22	17	18	10	40	27	1	1
21-24	19	15	13	10	32	25	3	3
25-34	39	31	9	5	48	36	12	11
35-44	23	17	3	3	26	20	0	0
45-54	19	14	2	1	21	15	3	3
55-64	6	5	6	2	12	7	2	2
65 and over	26	17	9	1	35	18	2	1
Unknown	2	1	1	1	3	2	2	1
Total	158	119	78	44	236	163	28	25

Source: Road Accident Facts Ireland 1999

The graph below shows the reduction in the number of fatal accidents since 1968.

Source: Road Accident Facts Ireland 1999



Appendix 5. Suicide Data.

Table of EU Standardised Rates

		Males	Females	Total
Greece	1996	4.7	0.9	2.8
Portugal	1996	8.4	2.3	5
Italy	1995	9.8	2.8	6.1
United Kingdom	1996	10.1	2.8	6.4
Spain	1995	10.5	2.8	6.4
Ireland	1996	19.1	3.4	11.2
Netherlands	1996	11.9	5.6	8.7
Germany	1996	18.2	5.9	11.7
Sweden	1996	16.9	6.9	11.8
Denmark	1996	20.2	7.5	13.6
Austria	1996	29.1	7.7	17.7
Luxembourg	1996	21.8	7.9	14.5
France	1996	24.5	8.3	16
Belgium	1994	27.1	9.1	17.7
Finland	1996	34.7	9.4	21.9

Source WHO database