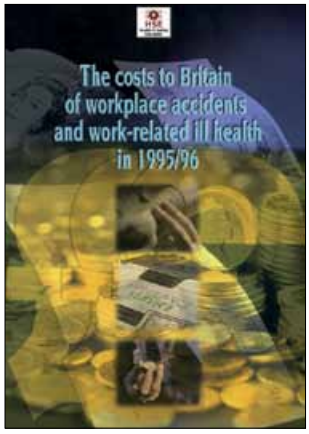
The cost to Britain of workplace accidents and work-related ill health in 1995/96



This is a free-to-download, web-friendly version of HSG101 (Second edition, published 1999). This version has been adapted for online use from HSE's current printed version.

You can buy the book at www.hsebooks.co.uk and most good bookshops.

ISBN 978 0 7176 1709 8
Price £24.95

This book updates cost estimates produced by Davies and Teasdale for 1990. It provides estimates of the costs of workplace accidents and work-related ill health in Great Britain in 1995/96.

These estimates cover the costs to individuals, employers and society. In comparison with the previous edition, this report provides a breakdown of the costs by industry, region and occupation. It is aimed at senior management, researchers, employers' associations, legislators, insurance companies, etc.

First published 1994 as *The costs to the British economy of work accidents and work-related ill health*
Second edition 1999

ISBN 978 0 7176 1709 8

Contents

Preface

The first edition of this study was written by Neil Davies and Paul Teasdale. The second edition has been revised by Fiammetta Gordon and David Risley (Health and Safety Executive, Economic Advisers Unit), with the involvement of other current and former HSE economists.

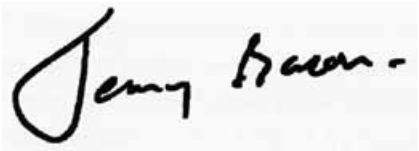
Foreword

Stopping accidents and ill health in the workplace does cost money. But so does not stopping them, as this study demonstrates.

To decide on the best measures to reduce injuries and ill health in the workplace, both at firm (micro) and policy (macro) level, we need to be able to compare the costs of such measures with the likely benefits from them, including the benefit of avoiding significant unplanned costs to individuals, industry and society generally.

This study updates cost estimates for 1990 made by the HSE economists N Davies and P Teasdale. The methods of calculation are similar to the previous edition, but this document draws upon the results of the Self-reported Work-related Illness Survey in 1995, and the Labour Force Survey injury estimates for 1995/96, in order to calculate costs to the British economy and society in 1995/96. It also provides more detailed cost estimates: by industry, region, and occupation. The report includes estimates of costs which are often ignored: those relating to non-injury accidental events, and to the loss of welfare to individual victims and their families.

The results indicate that, although on many measures occupational health and safety have improved over these years, there is still a large potential for gains to employers, as well as to individuals and society as a whole, from action to improve standards of health and safety in the workplace. Such improvements are not without costs, and a balance must be struck between the degree and costs of regulation and the benefits that could be expected. The figures do show, though, that as a nation we could squander fewer resources - human and otherwise - than we do today. Regulation of workplace health and safety is justified by the existence of 'external' costs, borne by society, and by the need to strike a balance between the costs of prevention (borne largely by employers) and the costs of injuries and ill health which fall upon individual workers and members of the public.



Jenny Bacon CB
Director General
Health and Safety Executive

Summary

1 The Labour Force Survey 1995/96 reported over 1 million injuries at work in the previous 12 months. The Self-reported Work-related Illness in 1995 survey reported that 1.3 million people who worked in the last year suffered from work-related ill health. As a result of these injuries and illnesses, a total of 24.3 million working days were lost and over 27 000 people were forced to give up work.

2 Using a total loss approach, this study sets out to estimate the costs to individuals, employers and society of workplace injuries and non-injury accidents and of work-related ill health for Britain in 1995/96.

3 *Individual workers who suffer work injuries and work-related illness are estimated to lose around £558 million a year in reduced income and additional expenditure (in 1995/96 prices)*. In addition they and their families suffer a further loss of welfare in the form of pain, grief and suffering. This is difficult to quantify in monetary terms, but we estimate this loss to be equivalent to a further cost of some £5.5 billion. Offsetting part of these costs is the amount received in civil compensation from employers, estimated at about £432 million. Thus, *the net cost to individuals of workplace injuries and work-related ill health is estimated to be almost £5.6 billion. When including the net present value (NPV) of future costs, the net cost to individuals equals £7 billion*.

4 *The cost to employers of workplace injuries and work-related ill health is estimated to be around £2.5 billion a year* (in 1995/96 prices): about £0.9 billion for injuries and £1.6 billion for illness. In addition, the loss caused by avoidable accidental events that do not lead to injury is estimated to be between £1.4 billion and £4.5 billion a year. The costs of these non-injury accidental events should be added to the costs of injuries, since the severity of the outcome of a management failure is largely a matter of chance. Estimates of costs due to non-injury events are uncertain, due to scarce information on their costs at firm level and on the actual number of non-injury accidents in relation to injuries, but they are nevertheless likely to be substantial. *The total cost to employers on this basis is estimated to be between £3.5 billion and £7.3 billion a year* (including insurance). To put this into context, it is equivalent to around 4% to 8% of all UK industrial and commercial companies' gross trading profits, and averages between £143 and £297 per person employed. *When including the net present value of future costs, total costs to employers equal £3.3 - £6.5 billion*. The estimated costs show that employers could make considerable gains by improving their health and safety performance.

5 *The overall cost to the British economy of all workplace injuries and work-related ill health in the most recent year for which detailed information is available (year 1995/96) is estimated to be between £2.9 billion and £4.2 billion.* When including costs of avoidable non-injury accidental events, *the overall cost equals £4.4 - £8.6 billion*, which is equivalent to between 0.6% and 1.2% of the total British Gross Domestic Product (GDP). This cost includes loss of output due to people being absent or leaving the labour market (around £2.2 billion), the property damage incurred by industry (£0.9 - £3.7 billion), the cost of medical treatment (between £181 million and £676 million), administration and recruitment costs incurred by firms, administration costs by insurance companies and the Department of Social Security (around £749 - £1735 million), and investigation costs to HSE and local authorities (about £11 million). *The total costs in 1995/96 to society as a whole*, including our estimates for the loss of welfare resulting from pain, grief and suffering of individual victims and their families, *is estimated to be between £9.9 billion and £14.1 billion*. This is equivalent to between 1.4% and 2.0% of the total British Gross Domestic Product. Illness accounts for about £6.2 -

£7.2 billion of this, injuries for £2.2 - £2.5 billion and non-injury accidents for about £1.4 - £4.5 billion. *If the net present value of costs in future years is included, total costs to the economy equal £9.0 - £12.6 billion (1.3% - 1.8% of GDP), and total costs to society equal £14.5 - £18.1 billion (2.1% - 2.6% of GDP).*

6 The results of our calculations show costs to society to be slightly higher at the bottom of the range, and lower at the top, as a percentage of GDP and in comparable terms (ie when including the net present value of future costs), than earlier estimates.

7 A strict comparison with studies which adopt different methods of calculation is not possible. It is worth noting, though, that compared to estimates from other countries, this study has used a wider definition of relevant costs, and yet has produced one of the lowest estimates in terms of percentage of national output. If we adopted an approach more similar to other countries in terms of costs included, our estimate would be even lower. Lower British cost estimates compared to those for other countries are partly explained by lower rates of workplace fatal and over-3-day injury in Britain.

Table 1 Summary of costs

Individual victims and their families (£m)			*Employers (£m)*			*Society as a whole (£m)*		
	Costs in 1995/96	NPV of future costs		Costs in 1995/96	NPV of future costs[a]		Costs in 1995/96	NPV of future costs[a]
Financial loss			*Costs of maintaining output*			*Lost output*		
Injury	130 - 132	192	Injury	237		Injury	521	593
Illness	426 - 428	1 159	Illness	682		Illness	1 675	4 124
			Damage			*Other resource costs: 1) Damage*		
			Injury	6 - 41		Injury	6 - 41	
			Non-injury	902 - 3 667		Non-injury	902 - 3 667	
			Insurance	367		Insured	320	
			Administration and recruitment			*2) Administration and recruitment*		
			Injury	34 - 55	-6 - -24	Injury	166 - 186	4 - -14
			Illness	305 - 990	-202 - -809	Illness	368 - 1 054	-131 - -738
			Non-injury	170 - 451		Non-injury	220 - 501	
						3) Medical treatment		
						Injury	54 - 238	3
						Illness	127 - 437	24
						4) HSE/LA investigations		
						Injury	11	
Loss of welfare			*Employers' liability insurance*			*Loss of welfare*		
Injury	1 488		Injury	552		Injury	1 488	
Illness	4 001		Illness	276		Illness	4 001	
Total	6 045 - 6 049	1 351						
Less: compensation from employers' liability insurance	432							
Net total	5 613 - 5 617	1 351	**Total**	3 533 - 7 320	-208 - -834	**Total**	9 856 - 14 138	4 616 - 3 991
	6 964 - 6 968			3 325 - 6 486			14 472 - 18 129	

(a) Where there is a range of values, the higher number precedes the lower due to savings in recruitment costs in future years in present value terms. To obtain totals including NPV of future costs, each figure of the NPV range is added to the corresponding figure of the 1995/96 range (see paragraph 123).

Chapter 1
Introduction and background

8 One of the factors which inform decisions about preventive measures and regulation of risk from work activities is the monetary evaluation of the costs of work-related illness and injuries. Using a similar framework to previous HSE work for 1990 (Davies and Teasdale, 1994), this report provides estimates of the costs of workplace injuries and non-injury accidents and of work-related ill health in Great Britain, 1995/96. It shows the extent of occupational injuries and illness, and identifies costs to individuals, employers and society. Cost estimates are then compared to previous British estimates and those made for other countries.

9 HSE (1993) has defined a work accident as *'any unplanned event that resulted in injury or ill health of people, or damage or loss to property, plant, materials or the environment or a loss of business opportunity'*. This is the definition used in this report. It should be stressed that describing such events as 'accidents' does not imply that they are inevitable or that no-one is to blame. Accidents and injuries are not synonymous; whether an accident causes injury is usually a matter of chance. However, injuries and non-injury accidents are generally caused by the same failures to control health and safety risks in the workplace (on the total loss approach, see also HSE, 1997). The cost estimates in this report therefore include non-injury accidents.

10 The definition of work-related ill health that we use is: *'any illness, disability or other physical problem that was caused or made worse by one's work'*. Since there may be a very long time lag between the cause of a work-related illness and its effects, the 1995/96 cost of work-related ill health to an extent reflects past rather than present working conditions.[1] However, it is impossible to identify lags except in individual cases, and analysis shows that a high proportion of the absences can be attributed to illnesses caused by fairly recent working conditions. Thus, the 1995/96 costs are the best indicator available of the costs likely to flow from present working conditions.

Sources of information

11 Official statistics and companies' internal accident records are both mostly limited to events causing personal injury. Under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985 (RIDDOR),[2] employers have been required to report only the more serious personal injuries (those involving fatalities, defined major injuries, and other injuries involving more than three days absence from work) and a limited set of serious damage only accidents. The coverage of illnesses is restricted to a defined list of diseases.

12 There are a number of sources of data on work-related ill health but these do not provide a complete picture either. With ill health there is often the further difficulty of establishing a link with work. Work-related ill health is usually the consequence of exposure to conditions over an extended period of time. In the case of certain diseases, the causal link to exposure at work is clear-cut (eg mesothelioma). However, with many diseases (eg lung cancer) there can be many causes, including those outside work.

13 In this report we make use of the following data sources which help to fill some of these information gaps:

(a) The Labour Force Survey provides estimates on the number of workers who suffer injuries at or in connection with their work, and the subset which are reportable by virtue of leading to four or more days absence from work. This information complements data on fatal injuries from RIDDOR. A trailer to the LFS, Self-reported Work-related Illness in 1995 (SWI95),[3] provides data on work-related ill health. It should be noted that, since we focus as much as possible on recent causes of incidents and ill health, deaths due to illness are excluded from the costings. This is because in the main, these deaths are due to exposure which occurred several years before (eg mesothelioma and pneumoconiosis), and changes in industrial structure and more stringent health and safety legislation have, if not entirely, eliminated such occurrences arising out of current working practices.

(b) Case studies based on a methodology developed by HSE's Accident Prevention Advisory Unit (APAU, now part of the Operations Unit), provide some indicative information on the numbers of non-injury accidents.

Table 2 Sources of information and coverage

Category	*Source*
Fatal injuries Employees/self-employed	RIDDOR
Reportable injuries (major injuries and over-3-day absences) (employees/self-employed)	LFS - largely comprehensive
1-3 day absences (employees/self-employed)	LFS - largely comprehensive
Minor (first aid) injuries (employees/self-employed)	LFS - some may be missed due to recall problems
Damage only	Ratios from case studies applied to numbers from LFS - wide definition of a 'non-injury' accident
Near misses	Not counted
Category of ill health	*Source*
Diseases caused by working conditions	SWI95 - largely comprehensive (but subject to uncertainties of individual judgement)

14 Chapter 2 provides more information on the LFS and the employer case studies, and presents their findings.

15 Chapters 3, 4 and 5 assess the costs to:

(a) the injured or ill workers and their families;
(b) employers; and
(c) the economy and society as a whole.

16 Chapter 6 carries out an overview of the costs and draws some implications.

17 Comparisons, between the estimates in this report and those previously

produced for Great Britain and estimates produced by other countries, are made in Chapters 7 and 8, respectively.

18 The appendices provide more technical detail to issues of method surrounding some of the topics and more information on the sources used. An explanation of how costs have been calculated is usually reported in the notes at the end of this report.

19 Tables on costs by industry, region, and occupation are provided in Appendix 8.

Impact on different parties

20 The costs of workplace injuries and non-injury accidents, and of work-related ill health, to workers and their families comprise two elements: financial costs, and what are often termed 'human' or 'subjective' costs. Financial costs consist of loss of earnings as a result of absence or loss of job - the difference between full pay when working and income when not working, for the duration of absence - and extra expenditure, for example on drugs and hospital attendance. 'Human costs' are the loss of quality of life or general welfare. These might result from the pain and suffering associated with the injury or illness, the worry and grief caused to family and friends, and the loss of amenity resulting from incapacity. We do not include financial or welfare losses of members of the general public injured as a result of work activities. Nor do we take account of the deaths arising through industrial illnesses.

21 Workplace injuries and non-injury accidents, and work-related ill health, place a number of costs on employers. These include loss of output, the amount paid for the absent worker for the duration of absence, administrative costs due to the absence, extra recruitment costs, damage to plant and equipment, compensation payments (usually covered by employers' liability insurance) and other insurance costs.

22 The costs to society as a whole are not simply an aggregation of the costs to individuals and employers, for two main reasons. Firstly, double counting needs to be avoided. For example, the cost of compensation to employers is a transfer to individuals, which will have been allowed for in the cost to individuals. Secondly, there are costs borne by the taxpayer in general, such as for National Health Service treatment, the administration and payment of disability and other social security benefits, and the investigation of injuries and non-injury accidents. The latter costs are included in our report, together with the cost due to lost output, gross wage and non-wage labour costs of the absent worker for the duration of absence, the damage costs to plant and equipment, and the human costs.

23 Even where costs fall initially upon individuals and employers, there will be consequences for other sections of society. For example, some of the cost to employers may be passed on to consumers in higher prices, and workers in high-risk industries will require higher wages to compensate for those risks, with implications for employment and prices. We have not attempted to estimate these effects.

24 In 1995/96, there were at least an estimated 411 000 people out of the labour force with work-related injury (3000) or illness (408 000, some of whom will have withdrawn for reasons apart from their illness). Nevertheless the number is still equal to almost 2% of the number employed; if they all could be employed we might expect that GDP would be proportionately larger, ie by some £12 billion. However, this estimate reflects mainly the loss due to past working conditions, and is not a measure of the potential gains from eliminating current causes of injury and ill health.

25 In this report, we concentrate on losses in 1995/96, but also attempt to estimate, as far as possible, the losses in subsequent years caused by working conditions in 1995/96. For people who are forced to withdraw from the workforce in 1995/96, we can take into account the resource costs over their remaining working lives and convert the stream of costs in future years to a net present value.

Chapter 2 The extent of workplace injuries and non-injury incidents, and of work-related ill health

Workplace fatalities

26 In 1995/96, there were 258 workers (209 employees and 49 self-employed), and 86 members of the public, killed as a result of workplace activity and reported under RIDDOR. The following tables report fatalities by industry, region and occupational breakdown. This report provides the cost of fatalities due to injuries, but not of illnesses. Fatalities due to illness are not accounted for in the calculation of the costs for the following reasons:

(a) there is a long lag between cause and effect, sometimes up to 30 years (eg mesothelioma); and
(b) policy measures have generally already been taken to address the causes and avoid future fatalities.

Table 3 Total number of workplace fatal injuries to employees and the self-employed 1995/96, as reported to all enforcing authorities

Industry	*Number of fatalities*	*Fatal injury rate (per 100 000 workers)*[a]	*Region*	*Number of fatalities*	*Fatal injury rate (per 100 000 workers)*[b]	*Occupation* [c]	*Number of fatalities*	*Fatal injury rate (per 100 000 workers)*[d]
Agriculture	40	8.0	South East (excluding London)	40	0.8	Craft & related	103	3.4
Manufacturing	43	1.0	East Anglia	10	1.0	Plant & machine operatives	68	2.9
Distribution & repair	23	0.6	South West	21	1.0	Other occupations	26	1.3
Construction	79	5.0	West Midlands	21	0.9	Personal & protective services	30	1.1
Consumer/leisure	9	0.7	East Midlands	17	0.9	Associate professionals	3	0.1
Hotels & restaurants	1	0.1	Yorkshire and Humberside	26	1.2	Sales	3	0.2
Transport & communications	22	1.5	North West	29	1.1	Managers	21	0.5
Finance & business	11	0.3	North	16	1.3	Professionals	4	0.2
Public administration & defence	10	0.7	Scotland	41	1.9	Clerical	0	0.0
Education	2	0.1	Wales	14	1.3			
Health & social work	0	0.0	London	18	0.6			
Energy & water	18	7.7	Other (offshore)	5	n/a			
Total	258	1.0		258	1.0		258	1.0

(a) Source for the denominator is the Short-term Employment Survey, ONS, average four quarters of 1995/96 for employees, and Labour Force Survey (LFS) average four quarters of 1995/96 for self-employed.
(b) Source for the denominator for Scotland and Wales is the Short-term Employment Survey, ONS, average four quarters of 1995/96 for employees, and LFS average four quarters of 1995/96 for self-employed. The denominator for the other regions is the number of people (employees and self-employed) who were currently employed in the winter quarter 1995/96, LFS.
(c) The fatal injuries reported to local authorities (LAs) are not coded by occupation, and the coding of occupation by other enforcing authorities may be erratic. These statistics are therefore not published in HSE official statistics. The figures presented above by occupation have been derived by matching the job description and SIC92 of the reported cases. They are subject to a margin of error.
(d) Denominator is the number of people (employees and self-employed) who were currently employed in the winter quarter 1995/96, LFS.

Figure 1 Fatal injury rate for workers, by industry, for 1995/96

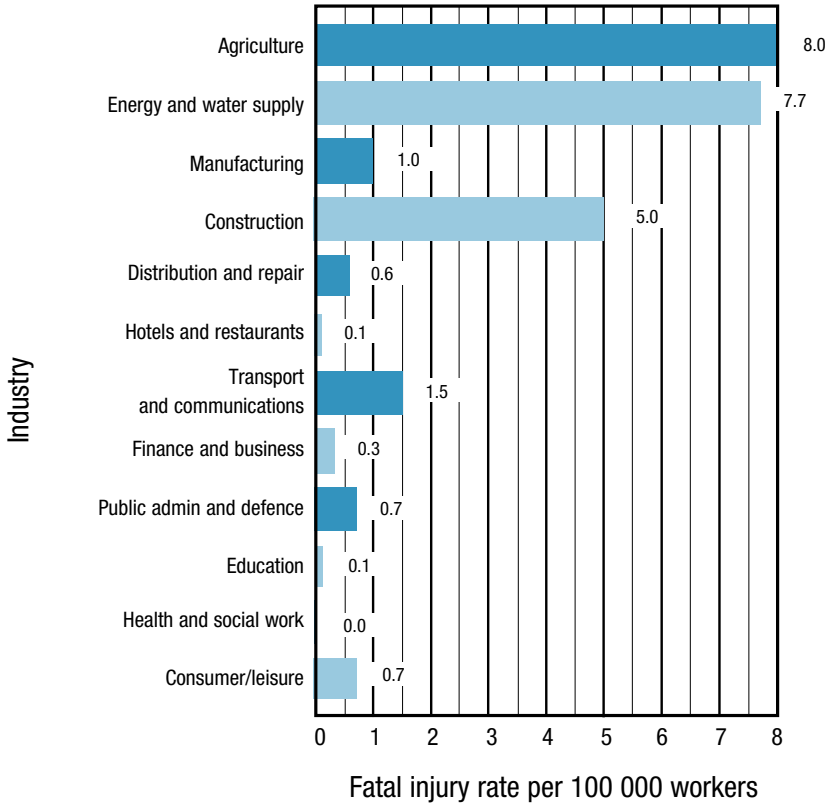


Figure 2 Fatal injury rate for workers, by region, for 1995/96

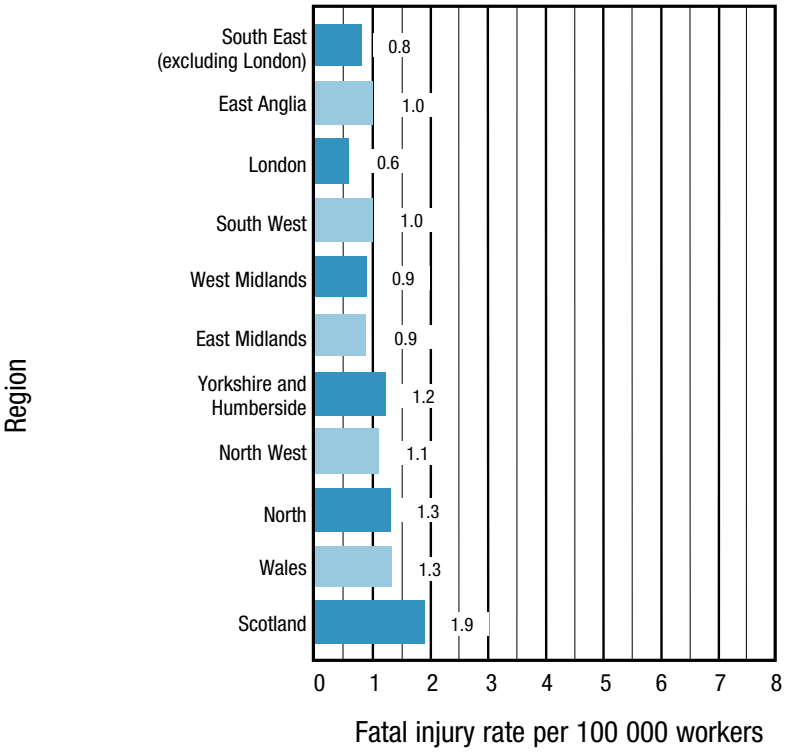
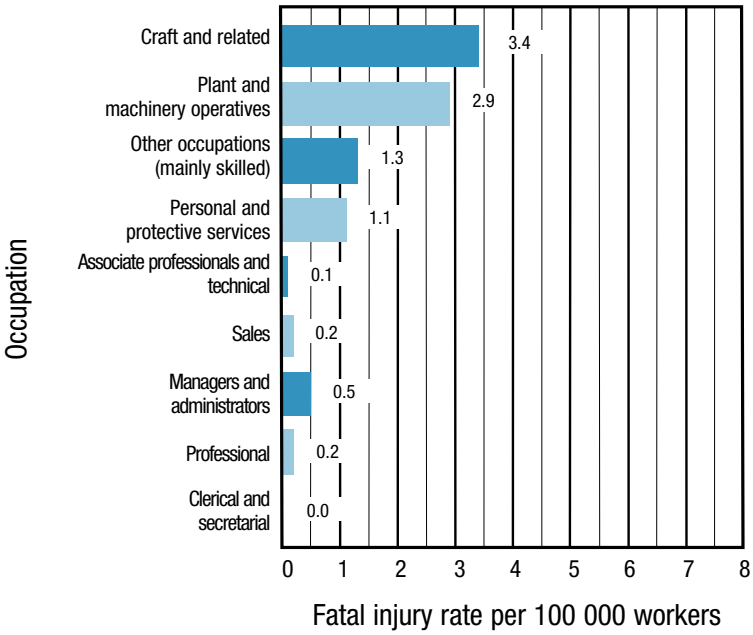


Figure 3 Fatal injury rate for workers, by occupation, for 1995/96



This means that the costs of deaths by disease are generally not due to current work practices, which is the subject of this report.

27 Table 3 shows that the largest number of fatal injuries occur in construction (31%) and manufacturing (17%). The highest risk industry is agriculture, followed by energy and water supply. The South East and London make up 22% of all fatalities, followed by Scotland (16%). Scotland appears to have the highest fatal injury rate, London the lowest. More than three-quarters of fatalities occur to people in manual occupations (craft and related, plant and machinery, personal protective services and 'other' occupations). The highest risk occupations are craft and related, whereas the lowest risk occupations are clerical, followed by associate professionals.

Workplace injuries

28 Employers and the self-employed are required to report to HSE, accidents involving fatalities, defined major injuries and injuries involving more than three days absence under RIDDOR. For 1995/96, RIDDOR reports a total of nearly 151 000 non-fatal injuries (18 000 major injuries and 133 000 injuries involving more than three days absence from work). While HSE gets to know of virtually all fatal injuries, employers and others do not report all major/over-3-day injuries that they should under RIDDOR. Furthermore, RIDDOR does not provide information on the length of absence from work.

29 The Labour Force Survey (LFS) provides estimates of the numbers of injuries which are reportable, and hence the scale of underreporting. It also gives estimates of the numbers of injuries which are not reportable, leading to three or less days absence. Since 1993/94, HSE has placed four questions in the winter quarters of the main LFS. Individuals are asked whether in the previous 12 months they have had '*any accident resulting in injury at work or in the course of work*'. Every three years, from 1994/95, individuals are also asked *'how many days after the accident'* they went back to work. In this report, we use injury estimates from LFS 1995/96 (see Appendix 1).[4] Since estimates of the number of days lost in 1995/96 (base year) are not available, they are derived by applying the profile of duration in 1994/95 to the numbers of injuries in 1995/96.[5]

30 According to the LFS, altogether there were just over 1 million workplace injuries to workers during 1995/96, of which about 65% resulted in someone taking time off work. In total about 9 million days (including weekends) were lost. Since analysis shows that about 13% of all injured workers are working part-time, we adjust the days lost figures by 6.5% (assuming part-timers work 2.5 days a week) and also adjust for weekends. It should be noted, however, that the proportion of part-timers varies across the categories within each breakdown, and consequently costs may be over or underestimated within each category, but not in the aggregate breakdown. The adjustment results in more than 6.3 million working days taken off work in 1995/96 due to injuries, an average of 9 days per injury involving absence.

31 Table 4 presents the findings of the LFS for 1995/96: an estimate of 381 000 non-fatal injuries leading to known periods of absence lasting over three days. By including the estimated 3 000 individuals who never return to work, this indicates that only two fifths of injuries covered by RIDDOR were actually reported to the authorities. The injuries resulting in more than three days absence account for 37% of the total of over 1 million workplace injuries. The LFS figures also suggest that each year nearly 1 in every 38 people in work experiences an injury at work leading to a recorded absence.[6]

32 LFS figures do not include members of the public injured by work activities. HSE records show about 13 200 reported non-fatal injuries to members of the public in 1995/96.

Table 4 Number of non-fatal injuries to workers (employees and the self-employed) in 1995/96,[(a)] by days absence from work - LFS

Time before returning to work	*Number of injuries (000s)*
Part of a day	122
1 to 3 days	150
4 to 7 days	103
1 to 4 weeks	146
1 to 3 months	70
Over three months	20
Injuries with recorded absence	**610**
Will never return to work	3
Still off work	43
Unknown[(b)]	27
Total	**683**
No days off	351
Total injuries	**1 034**

(a) See note 4.
(b) Not all of those with unknown duration will have taken time off.

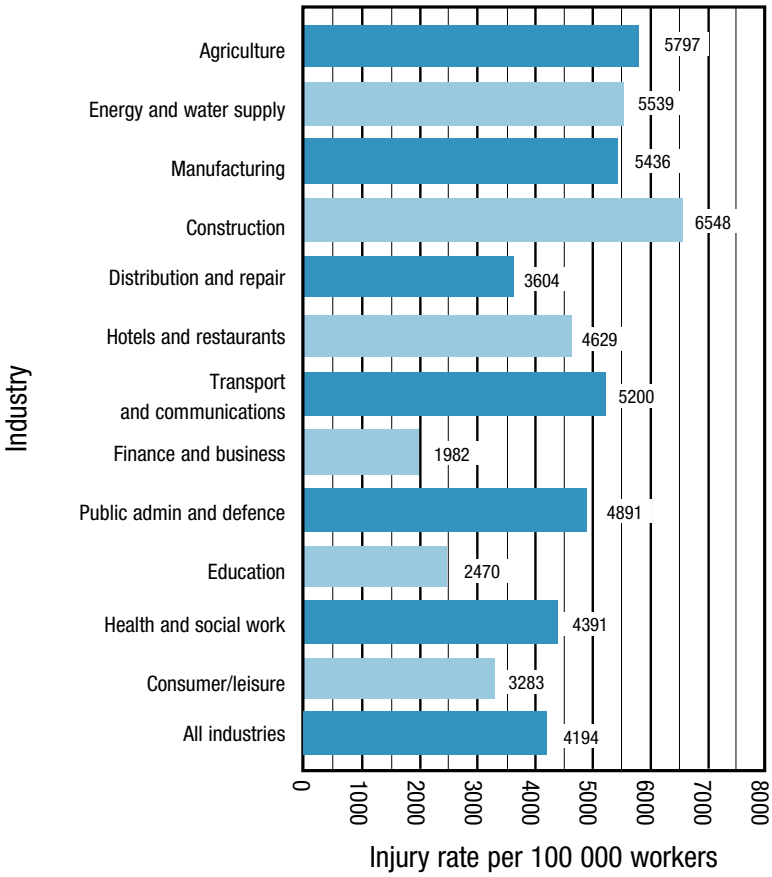
33 Tables 5 to 7 present the number of non-fatal injuries to workers, total and average days off work and injury rates by industry, region and occupation in 1995/96 from the LFS.

Table 5 Number of non-fatal injuries to workers by industry, in 1995/96,[a] LFS

Industry	*Total no of non-fatal injuries ('000s)*	*No of injuries involving time off work (including part days)[b] ('000s)*	*Total working days off work[7] [b] ('000s)*	*Average[c] no of working days off work (where time taken off)[b]*	*Injury rate per 100 000 workers[d]*	*Injury (resulting in absence)[b] rate per 100 000 workers*
Agriculture	26	18	248	14	5 797	3 849
Energy & water supply	17	13	71	6	5 539	4 273
Manufacturing	256	169	1 830	11	5 436	3 577
Construction	111	82	647	8	6 548	4 845
Distribution & repair	139	94	696	7	3 604	2 440
Hotels & restaurants	51	33	277	9	4 629	2 957
Transport & communications	81	54	603	11	5 200	3 479
Finance & business	68	43	336	8	1 982	1 254
Public admin & defence	70	40	626	16	4 891	2 784
Education	47	26	160	6	2 470	1 364
Health & social work	117	71	629	9	4 391	2 668
Consumer/leisure	49	32	249	8	3 283	2 143
All industries	1 034	673	6 352	9	4 194	2 729

(a) See note 4.
(b) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work (see Appendix 5). Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work). See also note to Table 15.
(c) Figures may not match the two preceding columns due to rounding.
(d) Total number of non-fatal injuries divided by the number of employees and self-employed reported in the LFS, winter quarter 1995/96.

Figure 4 Injury rate for workers, by industry, for 1995/96



34 A quarter of all injuries were in the manufacturing sector. Industries with the next largest shares of injuries were distribution and repair (13%), health and social work and construction (both 11%). The proportion of injuries which result in absence from work (65%) is fairly uniform across most industries. There is more significant variation in the average length of absence from work following an injury. Duration can be affected by the employer's approach and sick pay, as well as severity. In education, the average number of days absence per injury involving absence was 6, compared with 14 or more in the case of public administration and defence, and agriculture. The last column of Table 5 shows that, for non-fatal injuries resulting in absence, the highest risk industries are construction, energy and water supply, and agriculture. The lowest risks are in finance and business, and education.

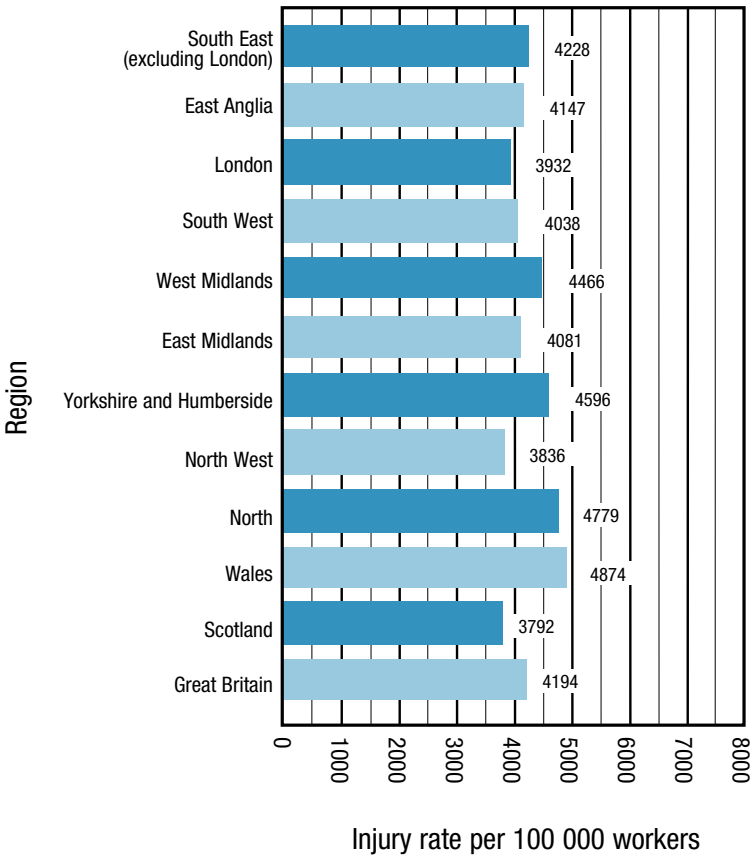
35 It should be noted that the total number of injuries may be an underestimate for the reasons discussed in note 6. It is possible that those industries, where injuries are more numerous and frequent, will be the most affected by the inclusion of only the most recent injury. So the differences between industries could be greater than in Table 5.

Table 6 Number of non-fatal injuries to workers by region in 1995/96,[a] LFS

Region	*Total no of non-fatal injuries ('000s)*	*No of injuries involving time off work (including part days)[b] ('000s)*	*Total working days off work [b] ('000s)*	*Average[b] no of working days off work (where time taken off)[c]*	*Injury rate per 100 000 workers[d]*	*Injury (resulting in absence)[b] rate per 100 000 workers*
South East (exc London)	216	133	1 023	8	4 228	2 615
East Anglia	40	26	243	9	4 147	2 696
London	116	72	706	10	3 932	2 451
South West	87	59	504	9	4 038	2 735
West Midlands	102	71	816	12	4 466	3 079
East Midlands	77	48	397	8	4 081	2 569
Yorkshire and Humberside	99	66	638	10	4 596	3 058
North West	99	65	602	9	3 836	2 509
North	59	32	427	13	4 779	2 549
Wales	56	38	277	7	4 874	3 350
Scotland	83	61	711	12	3 792	2 781
Great Britain	1 034	673	6 352	9	4 194	2 729

(a) See note 4.
(b) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work (see Appendix 5). Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work). See also note to Table 15.
(c) Figures may not match the two preceding columns due to rounding.
(d) Total number of non-fatal injuries divided by the number of employees and self-employed reported in the LFS, winter quarter 1995/96.

Figure 5 Injury rate for workers, by region, for 1995/96



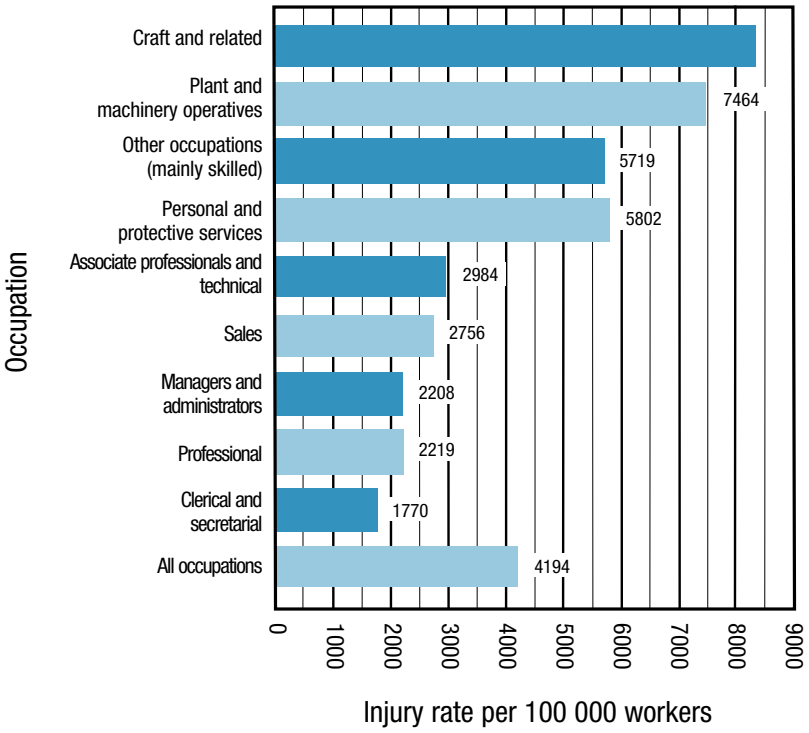
36 A fifth of all injuries were in the South East (excluding London), rising to nearly a third if London is added. The regions with the next highest number of injuries were London, accounting for 11% of the total, and the West Midlands (10% of the total). East Anglia had the fewest number of injuries (40 000). There seems to be slightly less variation in the average length of absence from work following an injury between region than between industry. The region with the highest average number of days absence per injury involving absence was the North (13), the lowest Wales (7).

Table 7 Number of non-fatal injuries to workers by occupation in 1995/96,[a] LFS

Occupation	*Total no of non-fatal injuries ('000s)*	*No of injuries involving time off work [b] (including part days) ('000s)*	*Total working days off work [b] ('000s)*	*Average[c] no of working days off work (where time taken off)[b]*	*Injury rate per 100 000 workers[d]*	*Injury (resulting in absence)[b] rate per 100 000 workers*
Craft & related	253	176	1 626	9	8 331	5 778
Plant & machine operatives	177	128	1 430	11	7 464	5 394
Other occupations (mainly unskilled)	116	81	811	10	5 719	4 008
Personal & protective services	152	100	905	9	5 802	3 805
Associate professionals & technical	70	41	325	8	2 984	1 758
Sales	55	36	266	7	2 756	1 793
Managers & administrators	86	48	466	10	2 208	1 230
Professional	58	29	209	7	2 219	1 118
Clerical & secretarial	65	38	362	10	1 770	1 019
All occupations	1 034	673	6 352	9	4 194	2 729

(a) See note 4.
(b) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work (see Appendix 5). Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work). See also note to Table 15.
(c) Figures may not match the two preceding columns due to rounding.
(d) Total number of non-fatal injuries divided by the number of employees and self-employed reported in the LFS, winter quarter 1995/96.

Figure 6 Injury rate for workers, by occupation, for 1995/96



37 A quarter of the individuals who suffered an injury at work were in craft and related occupations. About 17% were plant/machine operatives, and 15% were in personal and protective services. Where time was taken off work, the average number of days off was about 9 for most occupations. Almost half of the total number of days off work were taken by craft and related, and plant and machine operatives. It appears that injuries to people in blue-collar occupations, such as plant and machine operatives, and those in other (mainly unskilled) occupations and in craft and related, are more likely to result in absence from work, perhaps because they may tend to suffer more serious injuries. Manual workers, who make up 42% of the total workforce, account for around 72%[8] of reportable injuries. Manual workers are more affected not only because they have a higher incidence of injury, but also because there is a greater probability that any injury will impede their ability to work.

Work-related ill health

38 No single source of information is available in Great Britain on the nature and full extent of occupational and work-related ill health, and it is now recognised that the monitoring of work-related diseases has to be based on data from a range of sources. Major sources include the Industrial Injuries Scheme, which gives compensation for specified 'prescribed diseases'; these are conditions whose occupational cause is well established. Voluntary medical schemes such as SWORD, the surveillance of work-related respiratory disease, provide data on cases which are work related in the opinion of the specialist doctor seeing the affected person. Statutory reporting of occupational diseases under RIDDOR is another source of information. A further source is that of household surveys, which yield the number of people who say they have conditions which they think have been caused or made worse by work.

39 The latest household survey - the survey of Self-reported Work-related Illness in 1995 (SWI95) - helps to provide an overview of the extent of work-related ill health,

since the data is derived from a representative sample of Great Britain's population and is not restricted in terms of the ranges of illness and occupation covered. From August 1995 to February 1996, the LFS asked individuals whether they had experienced a work-related illness in the past 12 months; with permission, positive respondents were followed up and reinterviewed. Since the SWI95 is a household survey, findings have to be treated with some caution because they are mostly based upon the perspective of the individual affected. People may be mistaken in their judgements on whether their illness is work related. Some people who are generally dissatisfied with their work conditions may exaggerate the impact of work on their health, others may not recognise their illness as work related. However, to help meet some of these concerns, medical opinions were obtained from the doctors for half of those reporting work-related ill health. This showed that in only 11% of cases where the doctor gave an opinion, work was considered 'unlikely to be', or 'definitely not' a cause of the illness. Additionally, individual cases were reviewed, and cases were excluded where the reported link with work seemed non-causal[9] (see Appendix 1 for more detail). The results of the SWI95 for Great Britain are presented in the following paragraphs and tables.

40 Table 8 shows a total of more than 2 million people in Britain estimated to have had an illness caused by work (around 4.8% of all adults who have ever worked, ie full-time, part-time, inactive, unemployed and retired). Of these, about 1.3 million had been economically active in the previous year, that is 1 in 21 of the total people in employment.[10] About 52% of these, although suffering some illness in the previous 12 months, did not take time off work.

Table 8 Estimated prevalence of work-related illness,[11] SWI95

Economic status and impact on work		*Prevalence estimates (000s)*
Retired (over 65/60)		313
Inactive[(a)]/unemployed over 12 months		408
Forced job change		105
Absent from work	no days	672
	1 day or less	37
	2 to 5 days	154
	6 to 10 days	112
	11 to 20 days	95
	21 to 40 days	108
	41 to 65 days	42
	66 to 130 days	42
	131 to 260 days	34
Total[(b)]		2 017

Notes
(a) 'Inactive' are those who are still of working age but are not currently working and left their last job more than a year ago.
(b) The prevalence will sum to more than 2017 thousands since some people will have had a forced job change and taken time off work.

41 Table 8 also shows an estimated 105 000 people forced to change job the previous year because of illness. While over half of these found other employment or training, 48% became economically inactive, including about 24 000 (23%) long-term sick at the time of the survey, who had worked at some time the previous year. This could underestimate flows out of the workforce because some of those unemployed and temporarily sick (about 2000 people) may become long term.

42 Tables 9 to 12 present the number of people reporting work-related ill health and the average number of days absence, by industry, region, occupation and type of illness. In all cases (including those forced to change job because of an illness), those who had worked in the last year were asked whether they had taken any time off.

Table 9 Summary data on work-related illness by industry, for people working in the last 12 months, SWI95

Industry	*Prevalence estimate - people who have worked in the last year (000s)*	*No involving time off work (000s)*	*Estimated annual days off work (000s)*	*Average no of working days lost per ill worker who took time off*	*Illness rate per 100 000 workers[a]*	*Illness (resulting in absence)[a] rate per 100 000 workers*
Agriculture	31	17	802	47	5 711	3 179
Energy & water	42	21	1 061	50	11 413	5 767
Manufacturing	242	100	3 529	35	4 712	1 939
Construction	134	53	1 223	23	6 754	2 688
Distribution & repair	150	82	1 880	23	3 423	1 864
Hotels & restaurants	44	15	613	41	3 241	1 107
Transport & communication	73	38	1 115	29	4 189	2 205
Finance & business	105	56	1 134	20	2 736	1 459
Public administration & defence	97	47	2 054	44	6 053	2 928
Education	130	66	919	14	6 227	3 173
Health & social work	193	105	2 776	27	6 591	3 577
Consumer/leisure	71	31	881	28	4 319	1 907
All people[b]	1 296	624	17 967	29	4 689	2 259

Notes
This table shows the industry which the individual was working in and which caused the disease, rather than the current industry.
(a) Numerator for the first rate shown is column 2, whereas for the second rate is column 3. Denominators for the calculation of rates are based on the total number of people who have worked at some time in the last year. For those who reported a work-related illness the occupation/industry assigned to them is the one that caused the complaint. The remainder of the sample have been assigned to their current or most recently held job in the last year. This does not give a 'true' rate, since the job to which the illness is ascribed is not necessarily the current or most recently held job: calculation of a true rate would require knowledge of complete work histories for the whole population. However, these rates will be a close approximation to the true rates for short-term, non-persistent effects.
(b) The prevalence estimates and days lost will sum to more than the total because people who have more than one illness caused by different jobs are counted in each industry category.

43 An estimated one fifth of people suffering from a work-related illness who have worked in the last year believed a job in the manufacturing sector was the cause, 15% a job in health and social work, and 12% a job in distribution and repair. The estimated proportion of people with a work-related illness taking time off work in the last 12 months varies across the different industries: agriculture (56%), health and social work (54%), and distribution and repair (54%) were at the higher end of the range, while hotels and restaurants (34%), construction (40%) and manufacturing (41%) were at the lower end of the range. All the other industries had a rate similar to the 'all people' figure of 48%. There is more variation in the average length of absence from work by industry. In education the average number of working days absence per person (including only people who took time off) was 14, compared with 50 in the case of energy and water. Work-related prevalence rates vary largely among industries: energy and water supply shows the highest risks, followed by construction, health and social work, education, public administration and defence and agriculture, which have similar rates. Finance and business appears to be the lowest risk industry.

Figure 7 Illness rate for workers, by industry, SWI95

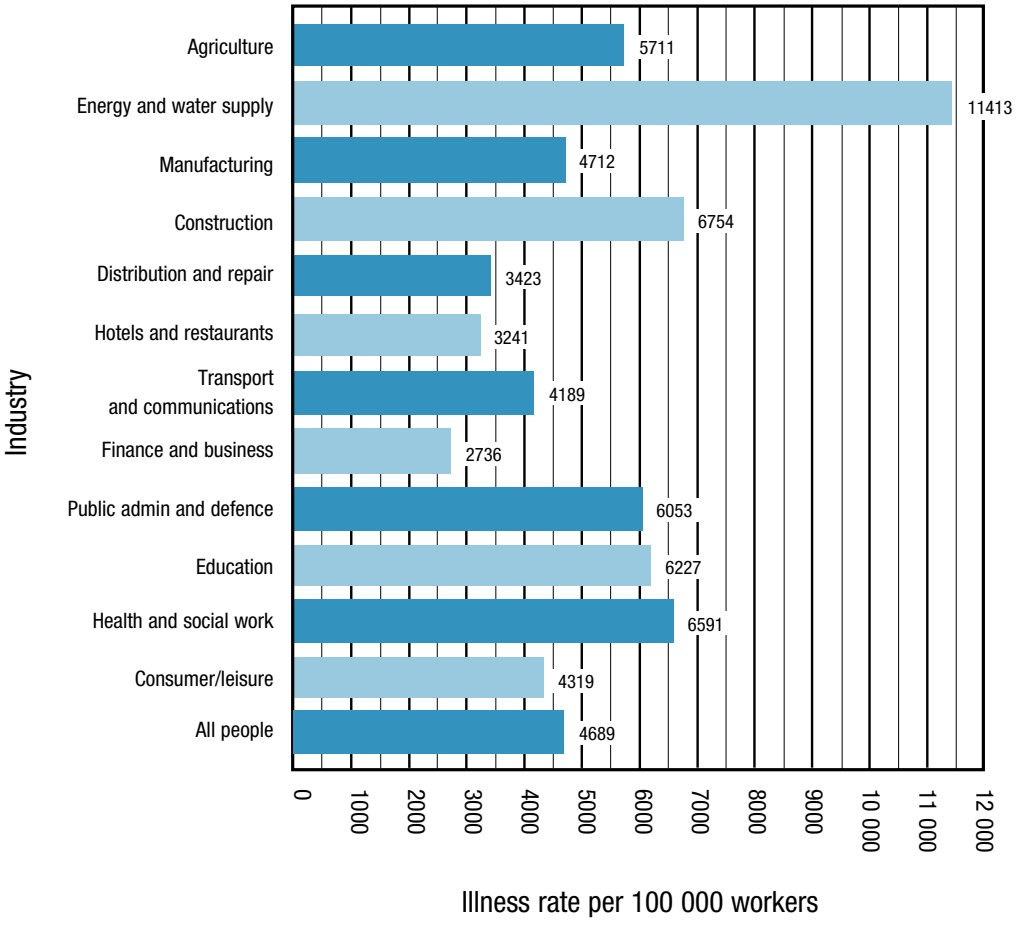
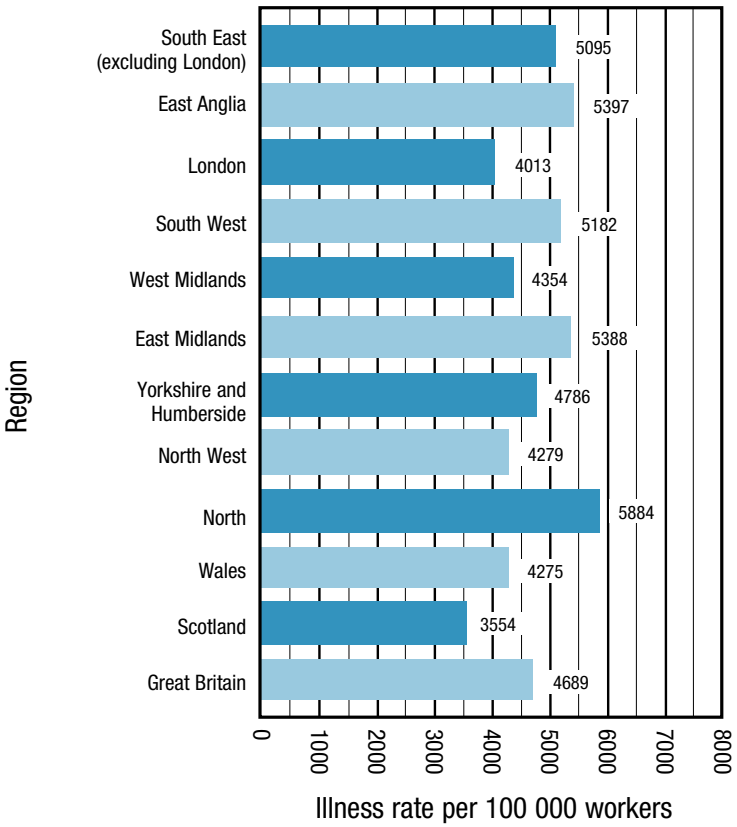


Table 10 Summary data on work-related illness by region, for people working in the last 12 months, SWI95

Region	*Prevalence estimate - people who have worked in the last year (000s)*	*No involving time off work (000s)*	*Estimated annual days off work (000s)*	*Average[c] no of working days lost per ill worker who took time off*	*Illness rate[a] per 100 000 workers*	*Illness (resulting in absence) rate[a] per 100 000 workers*
South East (exc London)	285	132	3 565	27	5 095	2 363
East Anglia	60	30	589	19	5 397	2 751
London	133	62	1 103	18	4 013	1 874
South West	125	56	1 414	25	5 182	2 308
West Midlands	113	43	1 155	27	4 354	1 656
East Midlands	112	58	2 177	37	5 388	2 819
Yorkshire & Humberside	117	53	2 087	39	4 786	2 165
North West	123	65	1 840	28	4 279	2 239
North	85	36	792	22	5 884	2 520
Wales	56	33	1 043	31	4 275	2 550
Scotland	89	56	2 202	39	3 554	2 242
Great Britain	1 296	624	17 967	29	4 689	2 259

(a) Numerator for the first rate shown is column 2, whereas for the second rate is column 3. Denominators for the calculation of rates are based on the total number of people who have worked at some time in the last year.

Figure 8 Illness rate for workers, by region, SWI95



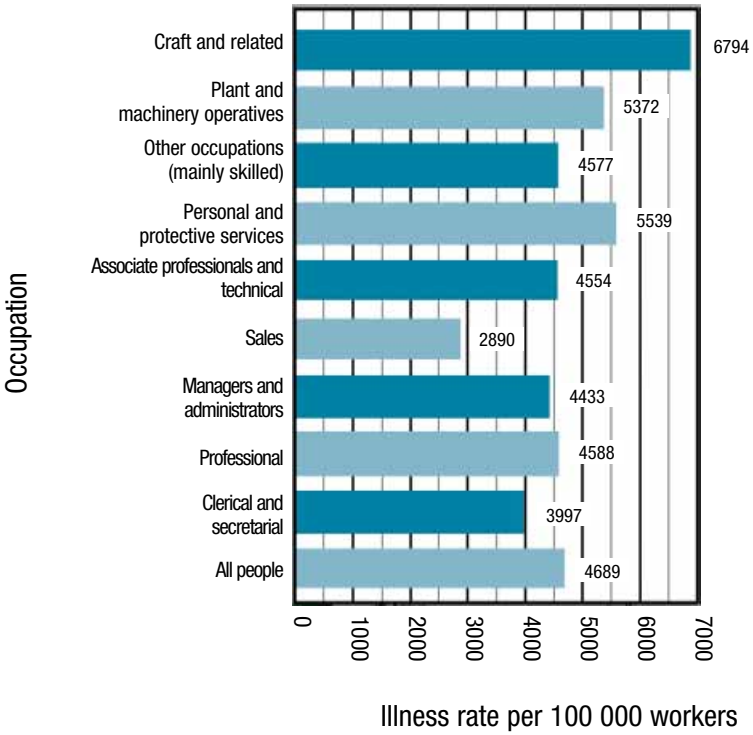
44 An estimated one fifth of people suffering from a work-related illness, who worked in the last year, lived in the South East (excluding London). Including people who live in London, the proportion rises to nearly a third. The South West and North West, each accounted for nearly 10% of people with a work-related illness. Wales had the lowest estimated prevalence (56 000). There seems to be slightly less variation in the average length of absence from work as a result of a work-related illness between regions than between industries. The regions with the highest average number of working days absence per person (including only people taking time off work) were Scotland and Yorkshire and Humberside (both 39), and the lowest was London (18).

Table 11 Summary data on work-related illness by occupation for people working in the last 12 months, SWI95

Occupation	*Prevalence estimate - people who have worked in the last year (000s)*	*No involving time off work (000s)*	*Estimated annual days off work (000s)*	*Average no of working days lost per ill worker who took time off*	*Illness rate[a] per 100 000 workers*	*Illness (resulting in absence) rate[a] per 100 000 workers*
Craft & related	233	87	2 278	26	6 794	2 523
Plant & machine operatives	141	72	1 973	28	5 372	2 734
Other occupations (mainly unskilled)	112	62	1 689	27	4 577	2 518
Personal & protective services	168	82	3 008	37	5 539	2 708
Associate professionals & technical	113	61	1 692	28	4 554	2 473
Sales	65	38	836	22	2 890	1 683
Managers & administrators	196	88	3 344	38	4 433	1 995
Professional	127	58	724	12	4 588	2 100
Clerical & secretarial	167	85	2 446	29	3 997	2 046
All people[b]	1 296	624	17 967	29	4 689	2 259

Notes
This table shows the occupation which the individual was working in and which caused the disease, rather than the current occupation.
(a) Numerator for the first rate shown is column 2, whereas for the second rate is column 3. Denominators for the calculation of rates are based on the total number of people who have worked at some time in the last year. For those who reported a work-related illness the occupation/industry assigned to them is the one that caused the complaint. The remainder of the sample have been assigned to their current or most recently held job in the last year. This does not give a 'true' rate, since the job to which the illness is ascribed is not necessarily the current or most recently held job: calculation of a true rate would require knowledge of complete work histories for the whole population. However, these rates will be a close approximation to the true rates for short-term, non-persistent effects.
(b) The prevalence estimates and days lost will sum to more than the total because people who have more than one illness caused by different jobs are counted in each occupation category.

Figure 9 Illness rate for workers, by occupation, SWI95



45 About 18% of the individuals who worked in the last year and suffered a work-related illness worked in craft and related occupations; about 15% were managers and administrators; about 13% worked in personal and protective services, and a similar percentage in clerical and secretarial occupations. It appears illness prevalence for people working in sales and other (mainly unskilled) occupations is more likely to lead to absence from work than it is for people working in craft and related occupations, and also for professionals, managers and administrators. This may reflect work contract conditions, pressure to meet deadlines or to maintain company performance.

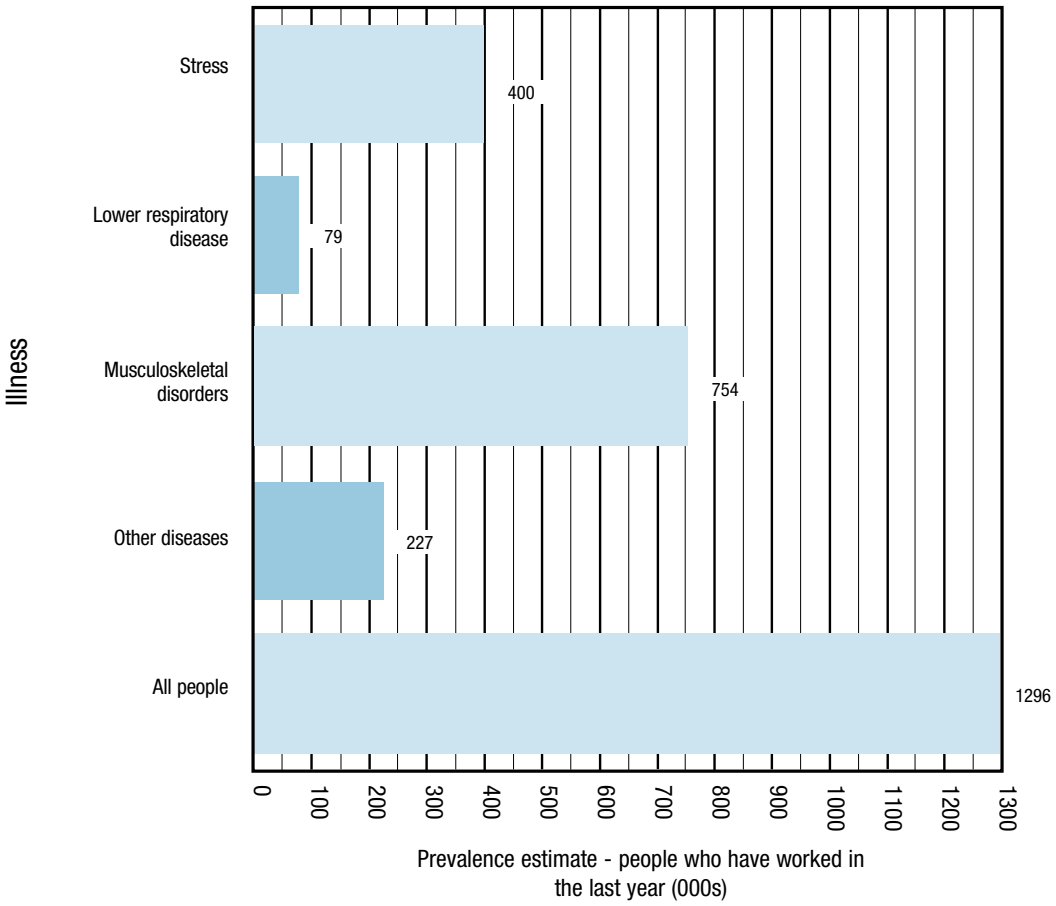
46 Where time is taken off work, the occupation with the highest average number of days absence per person (including only people taking time off) was that of managers and administrators (38), while the lowest was professional (12). The estimated numbers of working days lost by manual workers is broadly similar (only slightly lower) to the estimated working days lost by non-manual workers. Table 11 shows the occupation that caused the disease, not the current occupation. It therefore overstates the losses in occupations that cause illness, but from which people move.

Table 12 Estimated prevalence of self-reported work-related illness by disease group, for people working in the last 12 months, SWI95

Illness	*Prevalence estimate - people who have worked in the last year (000s)*	*% of total* [12]
Stress	400	31
Stress, depression or anxiety	235	18
Stress ascribed conditions	175	14
Lower respiratory disease	79	6
Musculoskeletal disorders	754	58
Back affected	423	33
ULN affected	314	24
LL affected	104	8
Other diseases[(a)]	227	17
All people[(b)]	1 296	

(a) The 'other diseases' category includes the following disease groups which were used in the SWI95 report: deafness, tinnitus and other ear conditions; skin disease; headache or eyestrain; vibration white finger; pneumoconiosis; trauma and other diseases.
(b) The prevalence estimate will sum to more than 1296 thousand because individuals with more than one type of illness or, for musculoskeletal disorders, with more than one site affected, are counted in each illness category.

Figure 10 Prevalence estimates of self-reported work-related illness by disease, SWI95



47 The pattern of diseases for those who worked in the last year is slightly different from the pattern for the whole population (see Table 13). These differences reflect a number of factors: changes in working conditions; some recovery when people are no longer exposed (eg stress, skin allergies) - conversely some illnesses take time to develop (eg deafness), and others force people to leave work early. Males who have worked in the last year (57%) are more likely than equivalent females (43%) to have had a work-related illness, probably because a greater proportion are in higher risk occupations.

Table 13 Estimated prevalence of absence or leaving a job in the last year because of work-related illness, by disease group, SWI95

Illness	*Prevalence estimate*	*Retired inactive as a proportion of total*	*Prevalence estimate - people who have worked in the last year*	*As a % of all people who have worked in the last year with a work-related illness*	*People leaving job in the last year due to a work-related illness*	*People absent in the last year due to a work-related illness*	*As a proportion of people with a work-related illness*	
	(000s)	*(%)*	*(000s)*	*(%)*	*(000s)*	*(000s)*	*(%)*	*(%)*
Stress	515	22	400	31	39	219	10	55
Stress, depression or anxiety	279	16	235	18	31	119	13	51
Stress ascribed conditions	254	31	175	14	10	105	5	60
Lower respiratory disease	202	61	79	6	11	36	14	45
Musculoskeletal disorders	1 155	35	754	58	58	335	8	44
Back affected	642	34	423	33	37	204	9	48
ULN affected	506	38	314	24	23	124	7	39
LL affected	212	51	104	8	10	52	10	50
Other diseases[a]	422	46	227	17	13	71	6	31
All people[b]	2 017	36	1 296	100	105	624	8	48

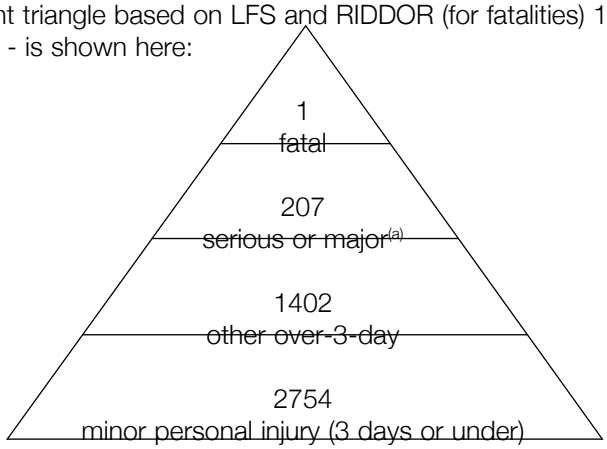
(a) The 'other diseases' category includes the following disease groups which were used in the SWI95 report: deafness, tinnitus and other ear conditions; skin disease; headache or eyestrain; vibration white finger; pneumoconiosis; trauma and other diseases.
(b) The prevalence estimates will sum to more than the total because people who have more than one type of illness or, for musculoskeletal disorders, with more than one site affected, are counted in each illness category.

Non-injury accidents

48 We do not have information on the incidence of non-injury accidents. If, however, the number of non-injuries is related to the number of injuries, estimates for the number of non-injury accidents can be derived from the LFS injury estimates, and their contribution to the costs can be calculated. Over the years there have been a number of studies looking at the injury/non-injury relationship, represented as a triangle. At the top of the 'accident triangle' are accidental events with the most serious outcome, ie involving one or more fatalities. Going down the triangle, injuries are less severe but more numerous (denoted by the increasing width of the triangle). At the bottom of the triangle are non-injury accidents - the least severe (at least in human terms) and the most numerous.

49 Heinrich conducted the first major study into injury and non-injury accidents in the USA during the 1930s. Heinrich defined a non-injury accident as an unintended event with the potential to have caused injury as well as damage to plant, equipment or materials but did not cause injury, only property loss. The idea behind his study was that accident prevention should be based on an analysis of the causes of all accidents, rather than on an analysis of the causes of those few accidents which only result in major injury. This would lead to the elimination of accident producing situations long before an injury actually occurred, an idea fundamental to loss control.[13]

50 The accident triangle based on LFS and RIDDOR (for fatalities) 1995/96 - for employees only - is shown here:



NB: The triangle is calculated having distributed 'still off' and 'unknown' to the various durations of absence (see Appendix 5).
(a) The LFS 1995/96 does not provide information on the number of 'major' injuries as defined by RIDDOR 85. On the assumption that there is a relationship between seriousness of the injury and duration of absence, all injury estimates where absence is more than two months, and all of those causing workers never to return to work, are considered serious and major injuries.

51 A study by HSE's Accident Prevention Advisory Unit (APAU, now part of the Operations Unit) of five organisations (a construction company, a food processing factory, a transport company, a hospital, and a oil production platform) in 1993, provides some indicative information on the ratio between injury and non-injury accidents.

52 The case studies use a wider definition of non-injury accidents than previous studies, as they encompass all unintended events resulting in loss, irrespective of whether the specific event had the potential in itself to cause personal injury.

53 The individual case studies reveal wide variations in the ratios. The ratio of non-injury accidents to injuries in the food manufacturing firm was 24:1, very close to that in the oil producing company (25:1) and similar to that in the hospital (18:1). The ratio in construction was much higher (64:1). These ratios are higher than those of Heinrich and others[14] (which are around 9 or 10:1) but (with the exception of construction) might not be seen as way out of line given the wider definition used. Davies and Teasdale (1994) applied an overall ratio of 20:1 to estimate the number of non-injury accidents.

54 Since 1993, little work has been carried out on accident triangles that reports the number of non-injury accidents occurred. Jacobson and Mottiar (1997) for example, carried out a similar study to HSE (1993), for Northern Ireland, but no non-injury accidents were reported in the period for the firms under study. Monnery

(1999) applied APAU's methodology to a cheque clearing department of a financial services organisation, and reports some non-injury accidents. However, he finds no definable accident triangle ratio, suggesting that the nature of cheque clearing work does not create significant amounts of non-injury accidents.

55 Recent work by HSE's Operations Unit[15] provides some more information on accident triangles in three organisations: a car plant, a town council, and an NHS general hospital. However, these new case studies are not comparable to the previous ones, since they do not use a total loss control approach, and therefore exclude many production related events and equipment breakdowns.

56 In this study we use the ratios from HSE (1993) and Monnery (1999) to estimate the number of non-injury accidents at an industry level. The case studies also provide some information on damage costs. Cost estimates based upon these studies should, however, be treated with extreme caution. There are difficulties in trying to identify non-injury incidents and the organisation used in the case study may not be typical of those in that sector generally. The case studies are also confined to a very small number of industries. We have, therefore, had to make quite strong assumptions such as that a hospital is typical of health and social work as a whole, and similarly for a construction company and construction as a whole.

57 The ratios used are shown in Table 14, by industry. In the region and occupation breakdowns, we assume an average ratio of 1:20.

Table 14 Injury/non injury ratios used in this report

Industry	*Injury/non-injury ratios*
Agriculture Consumer/leisure Distribution & repair Education Energy & water supply Hotels & restaurants Manufacturing[b] Public admin & defence Transport & communications	1:20[a]
Construction[c]	*1:64*
Health & social work[c]	*1:18*
Finance & business[c]	*1:0.6*
Other breakdowns[a] (region and occupation)	*1:20*

Notes
(a) This is the 'average' ratio used by Davies and Teasdale (from 1:24 creamery and 1:18 hospital).
(b) Since manufacturing includes several other categories apart from food processing, the figures in the creamery study have been only used to form the range.
(c) The figures in italic are taken from the relevant APAU case studies (and from Monnery, 1999, for finance and business) assuming that they are representative of these sectors.

Chapter 3 Costs to individuals

58 This chapter presents monetary estimates of the costs to victims and their families.

59 Individuals affected by workplace injuries and non-injury accidents, and by work-related ill health, can be divided into three groups:

(a) those taking time off and returning to work with the same employer;
(b) those having to change job/employer as a result of their injury or illness; and
(c) those having to withdraw from the labour force.

60 In Chapter 1, it was noted that there were two types of costs to individuals of workplace injuries and work-related ill health: financial costs and 'human costs'. In terms of the groups described in the previous paragraph, both types of costs are likely to be higher for group (b) than group (a), and higher still for group (c). Ideally, therefore, we would wish to look at each group separately. Unfortunately we have only limited data on the number of people who have changed their job, and no information on their earnings in their new job. We can therefore only distinguish between groups (a) and (c). This may, therefore, underestimate costs, although the number of days off relating to group (b) will be included under group (a).

Number of days off work

61 Since entitlement to sick pay and benefits depends upon the length of absence from work, it has been necessary to allocate the total number of days absence into duration bands (see Appendix 2) to calculate costs to individuals.

62 Tables 15 and 16 present estimates of the total number of working days (calculated as explained in Chapter 2 and Appendix 5) lost due to injury and illness respectively. The length of absence depends not just on the severity of the injury/ illness, but also on the requirements of the job (for instance an injury that would prevent a manual worker from working may not prevent an office worker from returning) and on the attitudes of management and other workers. Appendix 5 explains some of the problems surrounding both estimates.

Table 15 Absence due to non-fatal injuries to workers in 1995/96, LFS

Time before returning to work	*Injuries (000s)*	*Total annual working days lost, adjusted for part-timers (000s)*
No days lost	361	-
Part of a day	134	45
1 to 3 days	164	186
4 to 7 days	113	373
1 to 4 weeks	161	1 521
1 to 3 months	77	2 356
3 to 6 months	19	1 401
Over 6 months	3	470
Total	1 031	6 352
Never return to work	3	
All non-fatal injuries	1 034	

Note The total number of days lost due to injury differs from HSE currently published figures because: 1) we have estimated working days lost rather than duration of absence, so weekends are excluded, 2) we have assumed an average of 4.7 full time work days a week to take part-timers (13% in the LFS 1995/96 injury sample) into account, and 3) those workers who answered 'Don't know' and 'Still off' to the question on days off before returning to work are distributed among the other categories (see Appendix 5). See also note 4.

Table 16 Absence in the last year due to work-related ill health, SWI95

Number of working days away from work	*Prevalence estimate - people who have worked in the last year*	*Estimated annual working days lost (000s)*
One day or less[a]	708	35
2 to 5 days	154	525
6 to 10 days	112	981
11 to 20 days	95	1 447
21 to 40 days	108	3 076
41 to 65 days	42	2 129
66 to 130 days	42	3 672
131 to 260 days	34	6 102
Total	1 296	17 967

(a) This category contains zero days.

Note The total number of days lost due to illness differs from previously published HSE figures since we have estimated working days lost accounting for part-timers. The part-time adjustment is based on the hours worked in a week by the individuals in the SWI95 sample.

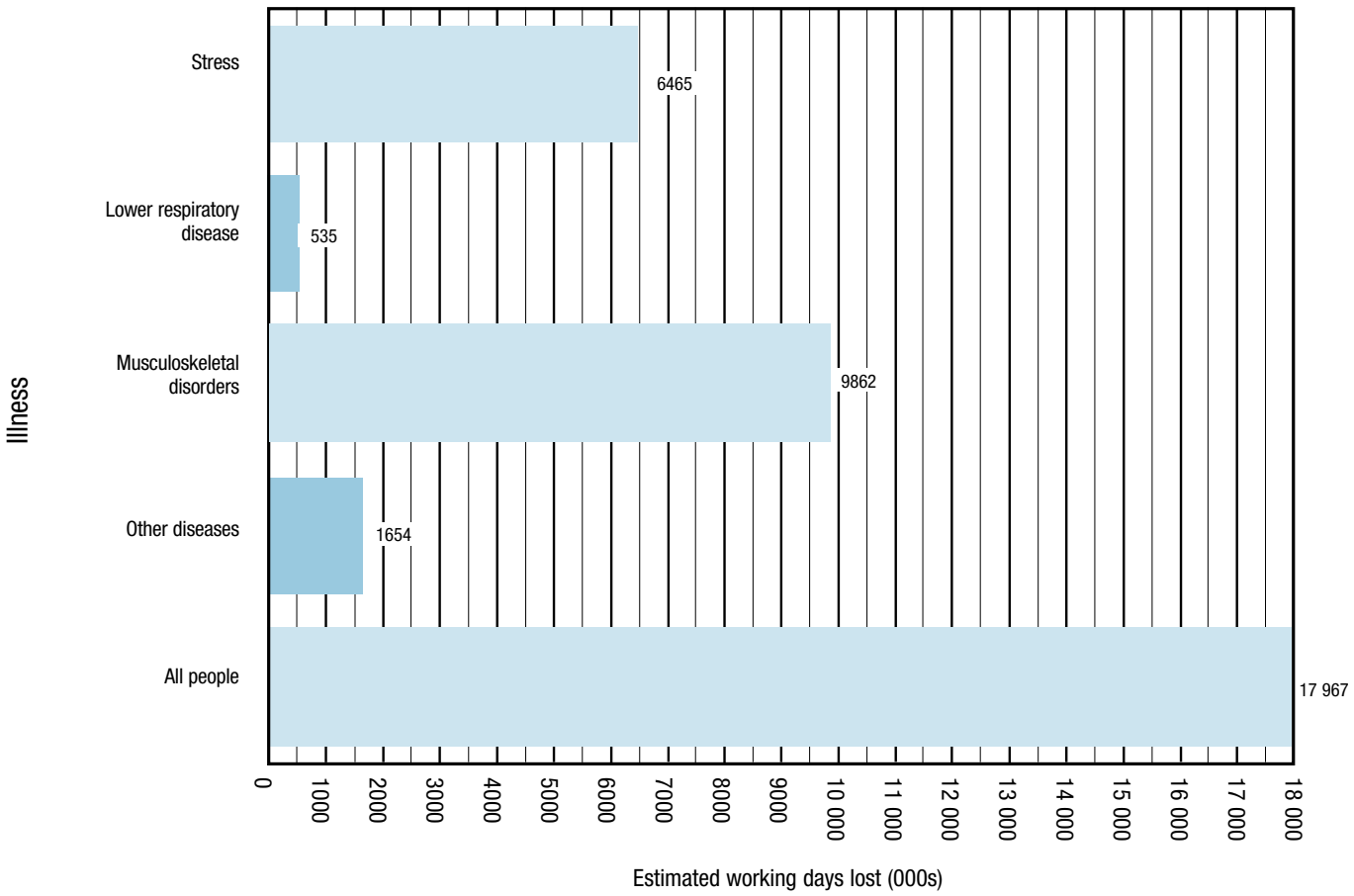
63 Table 17 shows the days lost due to illness broken down by disease group. A combined total of 24.3 million days lost through work-related illness and injury is equal to almost one day for each person in the workforce, or 0.4% of possible working days. In contrast, there are about 850 000 days lost due to industrial action on average for the years 1995 and 1996.[16]

Table 17 Estimated days off work in the last year due to work-related illness, by disease group, SWI95

Disease category	*Estimated working days lost (000s)*	*Avarage days lost per case*
Stress	6 465	16
Stress, depression or anxiety	4 593	20
Stress ascribed conditions	2 284	13
Lower respiratory disease	535	7
Musculoskeletal disorders	9 862	13
Back affected	4 820	11
ULN affected	4 162	13
LL affected	2 204	21
Other diseases[a]	1 654	7
All people[b]	17 967	14

(a) The 'other diseases' category includes the following disease groups which were used in the SWI95 report: deafness, tinnitus and other ear conditions; skin disease; headache or eyestrain; vibration white finger; pneumoconiosis; trauma and other diseases.
(b) Days lost sum to more than 17 967 thousand because individuals who took the same time off due to more than one type of illness or, for musculoskeletal disorders, with more than one site affected, are counted in each disease group.

Figure 11 Estimated days off work in the last year due to work-related illness, by disease, SWI95



64 Since the introduction of the Statutory Sick Pay scheme, detailed information on the number of days absence due to sickness has not been kept. Work undertaken by the CBI (1997) for 1996, shows that the total number of days of absence is around 187 million, so work-related injuries and illness would account for around 13% of the total.

65 For tables on the numbers of days lost, by occupation, industry, and region, see Appendix 5.

Financial costs

66 There are two types of financial costs incurred by individuals:

(a) loss of income; and
(b) extra expenditure.

(a) Loss of income

67 To examine the effects on the incomes of individuals, it is necessary to compare incomes at work with those while absent from work. This involves not just looking at wages but also tax rates (and other deductions) and benefit levels.

Income when at work

68 Data on earnings of people at work have been taken from the New Earnings Survey (NES). In order to take into account the various characteristics of ill and injured workers (manual/non manual, sex, region, etc), we have used information

on average gross weekly earnings in 1995/96 for each breakdown to derive normal gross pay per day (including overtime) and basic daily wage (excluding overtime).

69 Even if we had more details on the various wage levels for people injured/ill, it is unlikely that the picture would alter significantly (see Appendix 4).

Income when absent from work

70 For many people, absence from work means a reduction in income. The extent of this loss, however, differs substantially between individuals. Many employers continue to pay their absent workers full pay, although some only pay this for a fixed period and this may still involve a loss of income to the individual through loss of overtime, bonuses, etc. Some employers pay reduced wages, others only Statutory Sick Pay (SSP). Some may pay nothing at all. DSS Incapacity Benefit is available to those who are not entitled to SSP and do not receive payments from their employer (see Appendix 6 for more detail).

71 For an injured manufacturing industry worker who is absent from work, for example, the loss of daily income can range from £4.03 for those receiving the full basic wage (loss of overtime, bonus payments, etc, less the tax that would have been paid on this) to £49.28 for those receiving nothing (the gross daily pay less the tax that would have been paid on this). Details on the assumptions and calculations can be found in Appendix 4.

72 Statistical information on the proportion of workers that receive each of these types of income is scarce. Using information derived from the LFS in 1990, and from the Department of Social Security, to reflect the current structure of incapacity benefits, we have derived the number of days lost at full, part pay or on benefit (see Appendix 2 for our assumptions on this).

73 By applying the estimated difference in net daily income of individuals when absent from work to the estimated number of days for which it applies, we can estimate the total cost of absence to individuals. This is presented in Table 18 for all industry. Overall, it is estimated that absence as a result of injury at work results in a loss of income of about £129 million to individuals. Absence due to work-related ill health costs a further £369 million.

Table 18 Total loss of income when absent

	Injury		*Illness*	
Form of income when absent	*Days lost (000s)*	*Total income lost (£m)*	*Days lost (000s)*	*Total income lost (£m)*
Full pay	2 787	11	7 372	22
Part pay	939	14	2 919	42
SSP	1 336	49	3 795	141
Incapacity Benefit short-term lower	137	5	465	16
Incapacity Benefit short-term higher	81	3	638	20
Incapacity Benefit long-term	34	1	335	10
Nothing	976	47	2 445	118
Total	6 290[(a)]	129	17 967	369

Notes
Totals may not add up due to rounding.
(a) This figure differs from the total in Table 15 because part days are not included here.

Loss of income to those who have to withdraw from the labour force

74 The SWI95 shows that at least 24 000 people were forced to give up work due to ill health in the last year. We say 'at least' because this only includes those long-term sick and does not include those who are looking after others (who we assume may return to work later). The LFS indicates a further 3000 were forced to withdraw from the labour force because of a workplace injury. Of the total 27 000 people, some will receive a pension from their employer. Most will be dependent in whole or part on state benefits, of which there are a number (detailed in Appendix 6).

75 The large number of possible benefits combinations means that it is very difficult to estimate an average income for those out of the workforce. The 1995/96 Family Resources Survey,[17] however, shows that the unemployed or inactive[18] with 28 or more weeks of incapacity and under state pensionable age received on average these benefits to the value of £106.10 per week.[19,20] Of these, the disability benefits alone are £63.30. This approach allows for the fact that due to the level of household income, some of this group will not be entitled to such payments.

76 For example, this translates to a reduction in net income of about £28 per day[21] or £6800 per year, for an injured manufacturing industry worker. The average age of the injured who will never return to work and the ill who were forced to change their job and are now long-term sick/disabled was 51 for injury and 49 for illness. Taking account of the proportions of males and females, and rounding down to allow for the probability that people leave work before statutory retirement age for a number of reasons including early retirement and illness not related to work, we assume in our calculations that on average 12 working years are lost.[22]

77 Average earnings have increased in real terms by about 1.8% a year over the last 25 years or so. It is therefore appropriate to uprate future lost earnings by 1.8% a year. We then estimate (using the HM Treasury recommended real discount

rate of 6%) that, on average, over 12 years, the income loss to, for example, each injured manufacturing industry worker is about £66 100, in present value terms.

78 Applying the average income loss over 12 years, within each occupation, to the 27 000 people withdrawing from the labour force, gives a total cost in present value terms of about £1416 million, of which £77 million is the income loss incurred in 1995/96.

79 It should be noted that this does not take account of any loss of income that might happen in future years due to sickness or unemployment.[23] However, for many people this will understate their income while out of work, since some will receive compensation[24] from their employers and some of the loss may be offset by an occupational pension.[25] In addition, these estimates do not take account of:

(a) losses arising from the necessity for other people to take time off work, or to change or give up a job, to care for an ill person;
(b) the loss of income for those who are forced to change their job to one with lower wages;
(c) the cost of any necessary increases in expenditure associated with long-term incapacity (note, however, that the purpose of Disability Living Allowance is to meet some of the extra costs of disability); and
(d) losses of people temporarily unable to work (the SWI95 reports about 2000 unemployed and temporarily sick and 7000 inactive). It should also be noted that people with an illness tend to have longer periods of unemployment.

80 There will also be a loss of income to the families of those fatally injured at work. This is even more complicated to estimate. The average age of these fatalities is 43, and 96% of them are male workers. The 1995/96 Family Resources Survey (FRS) shows that, to those under state pensionable age, the average pension payment of Widow's Benefit was £59.30 per week, the figure rising to £66.30 once out-of-work income-related benefits are taken into account.[26]

81 We assume that everyone who died was married, and that every widow/er receives the Widow's Benefit at the average rate of payment for recipients in 1995/96, so that we take £66.30 as average weekly income of a household where fatalities occurred. To this, we add a £1000 one-off payment, which new widows also receive. We also assume that household members used to benefit from 60% of the deceased's net income. In the case of an injured manufacturing industry worker (again, for illustration purposes), this results in a reduction in net income of about £82[27] per week or £3960 per year, which, including the one-off payment, translates to a discounted total of £56 200 for the 21 years of working life lost.[28]

82 Applying similar figures to the categories in the industry breakdown for the total of 258 employee and self-employed deaths gives a total cost of £12 million in present value terms, of which £0.4 million is the cost incurred in 1995/96. This figure takes no account of other private benefits that may accrue to bereaved families such as company pensions or insurance payouts.

(b) Extra expenditure

83 In addition to the loss of income, there is likely to be an effect on the expenditure of those experiencing a work injury or work-related ill health. We have identified three impacts (a to c) which will result in increased expenditure, and one (d) which should reduce expenditure (note, though, that the costs and savings may fall to different people):

(a) *Extra purchases of medicines*: for some people this could be significant, though for most it will not. We assume just one prescription (and that everyone has to pay for prescriptions) for:

(i) the 1.3 million working in the last year with a work-related illness, and an extra one for those 434 000 absent for more than five working days due to an illness; and
(ii) the 394 000 with an injury leading to an absence over three days.

That gives an extra 2.2 million prescriptions at a unit cost of £5.25 in 1995/96, ie a total of £11 million.

(b) *Cost of travel to hospital for treatment*: the assumptions for treatment requirements are described in Appendix 3. If we allow an average cost of £1.40 for each return trip per outpatient treatment, and the same for visits by family members to those assumed to require in-patient treatment, the cost would be between £6.4 million and £10.1 million.
(c) *Increased shopping bills:* while a person is incapacitated their household grocery bills may be increased as they may be forced to use more accessible but probably more expensive outlets. We have assumed that for half of the absentees off for over a week, this adds 10% (£5.70) to normal weekly expenditure on food. The additional cost would be about £0.7 million for people injured and £1.3 million for people with an illness.[29]
(d) *Reduction in expenditure on travel to work*: we assume average daily costs of £1.40 for that, ie a £33.1 million saving. Weekly and season tickets will reduce this, but for some there may be extra costs for a while after they return to work (eg for those who normally walk or cycle).

84 To all these other costs, we should add the value of unpaid work, since lost household production is also an economic cost. We cannot estimate this with much accuracy, because it is possible that some people will no longer be at work but will continue to carry out household work, so this figure is not included in the total. The illustrative number, however, is £24 million for injury, and £61 million due to illness absence.[30]

85 Our estimates of the overall financial impact to individuals are summarised in Table 19. It shows that the total financial cost to individuals is £1.9 billion, of which £558 million is in 1995/96. The total including the net present value of future costs is dominated by the loss of those forced to retire due to illness. It should be noted that since 1995/96, average earnings have grown faster than expenditure on benefits and so the cost to individuals will have increased in real terms.

Table 19 Total financial loss to individuals

	Cause of loss	*Costs in 1995/96 (£m)*	*NPV of future costs (£m)*
Injury	-absence	120 - 121	
	-forced retirement[31]	10	180
	-fatal	0.4	12
Total injury		130 - 132	192
		322 - 324	
Illness	-absence	359 - 362	
	-forced retirement	67	1 159
Total illness		426 - 428	1 159
		1 585 - 1 587	
Total		556 - 560	1 351
		1 907 - 1 911[(a)]	

Notes
Totals may not add up due to rounding.
(a) The range is due to the costs of travel to hospital for treatment component of the extra expenditure costs (see Appendix 3).

'Human costs'

86 'Human costs' is a term for the loss of quality of life or general welfare. These might result from the pain and suffering associated with the injury or illness, the worry and grief caused to family and friends, and the loss of amenity resulting from permanent incapacity.

87 Financial costs are conceptually fairly straightforward to estimate. As we have seen, they are a measure of the difference between an individual's net income after an injury, including social security benefits and any compensation from their employer, and their expected earnings otherwise plus adjustment for changes in spending patterns.

88 Putting a value on 'subjective' costs is much more difficult. It is sometimes suggested that court compensation awards can provide a possible measure of such losses. However, there are serious limitations to relying on court awards as a measure of welfare loss to individuals. These limitations are most obvious in the case of death where compensation awards cover only financial losses to dependants with a token supplement for the distress suffered by the family of the deceased.

89 Economists have sought to obtain values for the cost of fatal and non-fatal injury to individuals based on what people are willing to pay to reduce their risk of being killed or injured, or what they are willing to accept for a small increase in such risks.

90 Since 1988, the Department of Transport (now Department of the Environment, Transport, and the Regions - DETR) has valued road accident fatality risks using

a willingness to pay (WTP) approach. As Hopkin et al (1995)[32] point out, this approach is consistent with cost benefit analysis in that decisions reflect the preferences and attitude to risk, of people who are likely to be affected by them. Therefore, as a measure of the subjective costs to workers and their families of work-related fatalities we have used the WTP component of the DETR value of prevention per road casualty.[33] This value has been broadly endorsed by a recent reassessment of the value of preventing a fatality (VPF) in a safety valuation study.[34] In light of this study, in our report the DETR's VPF is applied to the occupational health and safety risk context.

91 The amount to reflect the subjective or human costs is derived after deducting from the DETR value of prevention per road casualty, the direct economic costs, ie medical and support costs, and lost output - as their equivalents for fatalities at work are calculated elsewhere - and adding consumption (about 80% of lost output). Consumption is included since the ability to consume goods and services is seen as part of the enjoyment of life and is therefore taken into account by respondents in WTP surveys. The result is a value of about £766 000,[35] in 1995/96 prices, for the human cost of a fatal injury. It should be noted that these are values for *prevention* of fatalities, ie the WTP to avoid such injuries and diseases in the future, and as such represent no attempt to estimate the human costs as perceived by family members affected by a workplace tragedy.

92 This figure is applied to the number of fatalities due to workplace injuries. Since the average fatal road accident involved the loss of 39 years of expected life, VPF can be annualised (using the 2% 'pure time preference' component[36] of the discount rate), to give a value-of-preventing-a-fatality-year (VPFyear) equal to £27 900 in 1995/96 prices.

93 Unfortunately, WTP estimates are not available for every specific type or category of non-fatal harm. The costs of the rest of the non-fatal injuries and ill health have been derived using an approach which involved the use of a 'standard gamble',[37] and, only for permanently incapacitating illnesses, the 'relative utility loss index' approach.[38] Both methods have been subject of research for the Department of Transport.[39]

94 With the first approach, standard gamble, individuals are asked what risk of death they are prepared to run if they had to undergo an operation to try to restore them to normal health. By reference to the VPF, a value for this level of impairment can then be obtained.

95 The relative utility loss index uses a cardinal scale to describe the utility loss associated with a designated state of injury/ill health compared with normal health. To obtain monetary values of each year spent with impairment, the index is applied to the DETR VPFyear. The total welfare costs of workplace injuries and work-related ill health are then measured on the basis of what individuals who may become victims of injury or illness would appear to be prepared to pay to avoid the risk of such occurrences.

96 The monetary values (rounded) for pain, grief and suffering to individuals caused by work injuries and work-related ill health are shown in Table 20 (see Appendix 4 for an explanation of their derivation).

Table 20 Monetary values for pain, grief and suffering, 1995/96 prices

Severity	*Unit value (£)*
Minor injury	125
Non-serious reportable injury	1 550
Serious injury	10 600
Permanent incapacity following injury	147 100
Fatal injury	766 000
Minor case of ill health	125
Other cases of ill health	1 550
Permanently incapacitating ill health	136 100

97 Applying the values in Table 20 to data from the LFS and SWI95 gives total estimates for human costs of injuries and illness of £5.5 billion as shown in Tables 21 and 22.

Table 21 Subjective costs of injuries

Severity	*Number (000s)*	*Value (£)*	*Total cost (£m)[(a)]*
Fatalities	0.26	766 000	198
Injury leading to withdrawal from labour force	3	147 100	430
Absence over 3 months	22	10 600	231
Absence over 3 days	350	1 550	547
Absence of 3 days or less	660	125	82
Total	1 034		1 488

(a) Figures may not match the product of the two preceding columns due to rounding.

Table 22 Subjective costs of illness

Severity	*Prevalence estimate - people who have worked in the last year (000s)*	*Value (£)*	*Total cost (£m)[(a)]*
Illness leading to withdrawal from labour force	24	136 100	3 294
Absence over 1 calendar week	434	1 550	683
Absence of 1 to 7 calendar days	191	125	24
Total			4 001

(a) Figures may not match the product of the two preceding columns due to rounding.

98 These calculations do not take into account the welfare loss of those who leave work for reasons not related to their occupational illness but whose subsequent life is made worse because of that illness. A major omission is the welfare loss of those who reach retirement but suffer continued or delayed effects (eg deafness). Nor do we take into account the people forced to change jobs for whom the illness had probably caused some distress.

99 It should be noted that, in 1995/96, 86 deaths of members of the public occurred as a result of workplace activity. The human costs of those fatalities are estimated at £66 million.

Table 23 Number and subjective cost of workplace fatal injuries to members of the public, 1995/96, as reported to all enforcing authorities, by industry and region

Industry	*No*	*Cost (£m)*	*Region*	*No*	*Cost (£m)*
Agriculture	5	3.8	South East (excluding London)	25	19.2
Energy & water	3	2.3	East Anglia	5	3.8
Manufacturing	0	0.0	London	4	3.1
Construction	3	2.3	South West	10	7.7
Distribution & repair	2	1.5	West Midlands	9	6.9
Hotels & restaurants	0	0.0	East Midlands	2	1.5
Transport & communication	3	2.3	Yorkshire and Humberside	7	5.4
Finance & business	2	1.5	North West	11	8.4
Public administration & defence	3	2.3	North	5	3.8
Education	2	1.5	Wales	2	1.5
Health & social work	48	36.8	Scotland	6	4.6
Consumer/leisure	15	11.5			
Total	86	65.9	Total	86	65.9

Notes
Totals may not add up due to rounding.

Overall costs to individuals

100 Table 24 combines the financial and subjective costs to give a total cost to individuals of about £7.4 billion, of which £6 billion is in 1995/96. This does not include financial or welfare losses of members of the public injured as a result of work activities.

Table 24 Total costs to individuals

	Injuries (£m)		*Illness (£m)*		*Totals (£m)*		
	Costs in 1995/96 (£m)	NPV of future costs (£m)	Costs in 1995/96 (£m)	NPV of future costs (£m)	Costs in 1995/96 (£m)	NPV of future costs (£m)	Total (£m)
Financial	130 - 132	192	426 - 428	1 159	556 - 560	1 351	1 907 - 1 911
Subjective	1 488	-	4 001	-	5 489	-	5 489
Total	1 618 - 1 620	192	4 427 - 4 429	1 159	6 045 - 6 049	1 351	
	1 810 - 1 811		5 586 - 5 588				7 396 - 7 400

Notes
Totals may not add up due to rounding.

101 These costs are partly offset by compensation paid by employers (see Chapter 4). We estimate civil compensation paid to victims of workplace injuries and work-related ill health to be £432 million (60% of total employers' liability claims - with legal costs and expenses responsible for the rest), about two thirds being to victims of injuries. So the total net cost of workplace injuries and work-related ill health to individuals is about £7.0 billion, of which £5.6 billion is in 1995/96.

Chapter 4 Costs to employers

102 This chapter looks at the costs to employers of workplace injuries and non-injury accidents, and of work-related ill health. Nearly all costs are incurred in 1995/96, unlike the costs to individuals and society where about 20-25% of the costs are suffered in future years. We quantify four costs:

(a) costs resulting from absence from work;
(b) costs of replacing those who are forced to quit the job;
(c) damage to materials and equipment; and
(d) compensation and insurance.

103 There are some costs we cannot quantify, partly due to lack of data and partly due to the somewhat intangible nature of the cost. These include:

(a) reduced productivity, as a result of injuries or absenteeism; and
(b) loss of goodwill and reputation of the firm with its workforce, customers and the local community.[40]

Cost of absence

104 As presented in Tables 5 and 9 in Chapter 2, there were a total of 6.4 million days lost through absence following injuries, and 18 million lost through ill health. To estimate the cost of this to employers we need to address a number of issues.

Costs of maintaining output

105 A firm may react to an employee's absence from work by either:

(a) accepting a loss of output; or
(b) taking action to maintain output.

106 The APAU[41] case studies suggest that the second option is the most realistic one. There may be various reasons for doing so: delivery penalties, loss of reputation, integrated processes, 'just-in-time' production systems.

107 Firms have a range of means available to maintain output:

(a) reorganisation (eg less essential tasks are postponed);
(b) extra effort by colleagues or by the injured/ill person when they return;
(c) extra hours at standard rate by part-time workers;
(d) overtime at higher wage rate;
(e) taking on temporary workers; and
(f) temporary reduction of stocks made up by extra work at a later date.

108 The choice depends on the circumstances (including the actual or expected duration of absence), eg the nature of the production process, the state of the product market, time of the year, and whether other people are away. The options have different implications for costs:

(a) Most organisations already operate with a degree of flexibility to cover a whole variety of causes of absence (even though this may be less true of small firms). This flexibility would be maintained even if absence due to work-related injuries and ill health was reduced. Thus, financial savings are unlikely.
(b) *Extra effort*: the costs are borne by the rest of the workforce, and possibly, by the absentee on their return. This is usually only feasible for a short time.[42]
(c) *Decline in quality*: the cost is borne by the public. This may mean possible losses in future sales if the image of the firm is adversely affected.
(d) *Part-time workers available to work extra hours or overtime*: this involves an immediate extra financial cost ascribed to the absence.
(e) The case studies showed that it is not always necessary to replace all the missing time to maintain output. However, where all the missing hours need to be replaced, it will usually be cheaper to employ a temporary replacement. There will usually be some extra administration costs but these may be offset by lower non-wage labour costs.
(f) If a very long absence is expected, it may be cheaper to bring forward recruitment or perhaps to contract work out.

109 The APAU case studies show that overtime was rarely used and even where it was, usually only a little was required. In most incidents there was little financial cost, since output was maintained by extra effort. However, nearly all the absences were for less than three days, so the response to longer absences may be very different.

110 We have assumed that, on average, output is maintained[43] and that the cost of maintaining output is equal to the labour cost that is normally incurred in employing the absent worker.[44] Thus we assume the overall costs of production are unchanged. We reason that if it costs employers more than this to maintain output and if they have a choice, they would choose to forego the output. We assume, however, that for absences of less than one day the output is maintained at no extra cost (except for extra administration costs).

111 This is obviously a simplification, but we think it is a reasonable approximation of the average. In some situations the cost of maintaining output will be higher, but is incurred to avoid financial penalties; in other cases it may not be possible to

make up output and employers may lose some profits. On the other hand there are many situations where the adjustment will incur little cost.

112 The extra cost of maintaining output is partly offset by savings in payments to the absentee, the extent of which will depend on sick pay arrangements. From our assumption that the costs of maintaining output are equal to the normal cost of employing the absent worker, the result is that, on average, the net financial cost of absence is equal to the amount paid in sick pay by the employer (plus any administration costs).[45]

Sick pay

113 Our assumptions about sick pay arrangements and average earnings for each breakdown are discussed in Chapter 3.

114 In addition to the wage paid, the cost to the employer of hiring a worker includes non-wage labour costs. Information on non-wage labour costs is available from the 1992 Labour Costs Survey (LCS),[46] from which a 27% mark-up due to non-wage labour costs can be derived, on average. We have used this figure for the region and occupation breakdowns, and each industry's own mark-up in the industry breakdown where possible. Mark-ups vary from 18% in hotels and restaurants, to 36% in finance and business industry.[47]

115 The largest components of non-wage labour costs are employers' national insurance contributions, contributions to superannuation, and pension and insurance funds. These are directly related to wage levels. We have therefore assumed that non-wage labour costs are reduced proportionately when absentees receive part pay and are negligible when there is no sick pay.

116 The Statutory Sick Pay (SSP) scheme provides for a specified amount to be reimbursed by the government for people off work for over three days. It lasts 28 weeks. In 1995/96 standard SSP was £54.55 per week or £10.91 per working day. Using the average gross daily wage (including overtime, bonuses, shift pay, etc) for a full-time injured worker in the manufacturing industry, for example, the daily cost to the employer of someone absent on full pay is assumed to be £84.72 (£65.68 x 1.29) for up to 3 days' absence. The figure becomes £73.81 (£84.72 - £10.91) for absence between four days and six months, returning to £84.72 after six months.

117 For illustration purposes, Table 25 shows total costs to manufacturing industry employers, calculated using the average gross daily wage for manufacturing industry workers, in 1995/96, for full and part pay. We assume that those absentees in part pay receive 75% of the wage. The table also shows the number of days for which these different payments apply (see Appendix 2).

Table 25 Costs of sick pay for absences due to workplace injury and work-related ill health in the manufacturing industry

	Injury			*Illness*		
Costs to employer	*Cost per day (£)*	*Number of days (000s)*	*Total cost (£m)*	*Cost per day (£)*	*Number of days (000s)*	*Total cost (£m)*
Full pay (no SSP)	84.72	138	12	85.72	150	13
Full pay less SSP	73.81	667	49	74.81	1 348	101
Part pay (no SSP)	63.54	47	3	64.29	92	6
Part pay less SSP	52.63	225	12	53.38	461	25
Nothing	-	743	-	-	1 478	
Total		1 820	76		3 529	144

Notes
Calculations and totals in this table are based on average income in the manufacturing industry for illustration purposes only. The results in the text and in Table 27 are for the whole economy and are based on average earnings by occupation breakdown as explained in Appendix 4. Appendix 8 reports costs for each breakdown.

118 The total cost to employers of maintaining production, net of savings on payments to absentees, is estimated to be £237 million (an average of £37 per day) for injury absence, and £682 million (an average of £38 per day) for illness absence.[48] This is probably an underestimate because:

(a) not all people getting company sick pay will qualify for SSP;
(b) we have assumed a single spell for illness absence, but if people had a few short spells they would be more likely to have received full pay; and
(c) the numbers exclude people forced to quit work due to injuries but who may have spent some time on sick pay before that.

Administration

119 The employer also incurs an administrative cost in dealing with the absence, such as the calculation and payment of SSP, collection and processing of sick notes, possibly extra management time in rescheduling, etc. We have assumed this takes, on average, about half an hour of an accounts and wages clerk's time per day of absence. Based upon NES data for this occupation plus non-wage labour costs, this is estimated to cost £4.25[49] per day. Applied to the total number of days off, it gives an estimated cost of about £24 million for workplace injuries and £68 million for work-related ill health. It should be noted that, to the extent that some of these costs are relatively fixed, they would not be reduced proportionately by a reduction in the number of work-related injuries and illness, since these account for a relatively small proportion of total absences.

Recruitment

120 Employers incur extra recruitment costs where they have to replace workers who leave prematurely as a result of their injury or ill health. The LFS and SWI95 indicate about 3000 people who would not return to work after their injury, 105 000 people who were forced to change job because of their illness (24 000 of these withdrawing from the labour force[50]), and 41 000 people who changed job within

the same organisation due to their work-related illness. Of these, more than 90% were employees. To these numbers should be added the 209 employees who were fatally injured at work.

121 We assume that all employees leaving are replaced,[51] which may be an overestimate. However, offsetting this, we have taken no account of recruitment brought forward as a response to long absences, or of injured people who have to move to a different job within the same organisation.

122 The extent of the cost of recruitment is uncertain and varies for different firms. Nevertheless, a national survey of labour turnover carried out by the Institute for Personnel Development provides average turnover costs (per leaver), as reported by employers. These costs cover leaving costs (eg payroll and personnel administration), replacement costs (eg recruitment and interview time), transition costs (eg training costs and lower productivity of new workers), and indirect costs (loss in customer service/satisfaction). These are presented in Table 26, by occupation. The average (across all occupations) figure of £1918 has been derived by weighting the turnover costs by the number of withdrawals from the labour market due to workplace injuries and work-related illness, by occupation. We have used the average figure for the region and industry breakdowns. For those who have to change job within the same organisation, we have assumed 60% of recruitment costs, to exclude leaving costs.

Table 26 Estimated labour turnover cost (per leaver)

Occupational classification	*Cost (£)*
Managers	4 295
Professionals	4 140
Associate professionals	2 925
Clerical & secretarial	1 335
Craft & related	1 402
Sales	2 551
Plant & other machine operatives	1 001
Other (mainly unskilled)	841

123 This tends to overstate the cost to the affected employer since the employee will leave at some point anyway. The additional cost to employers is the cost of bringing forward labour turnover. We assume that, on average, recruitment is brought forward by three years due to a person leaving. The cost of future recruitment is assumed to increase in line with the growth in real earnings, so we uprate costs by 1.8% per year and then apply the real discount rate of 6% (see Chapter 3). The additional cost will therefore be:

£1918 (cost of recruiting today) - (1918 x 1.018^3)/ 1.06^3 = £219 (cost of recruiting in three years time)

124 However, if the replacement is already employed the move will create a vacancy, and a chain will be created until a person is recruited who was not previously employed. Other employers, who may have no injured employees, will therefore also be affected. We assume a chain length of between one and four people. If so, this would give a cost of between £219 and £876.

125 Using these assumptions, with appropriate costs of recruiting by breakdown,

the total cost of around 3200 people who have to be replaced due to fatal or non-fatal injury and 146 000 people who have to be replaced due to illness is calculated to be £7 - £27 million and £228 - £914 million in 1995/96 for injury and illness respectively. When deducting the net present value of future recruitment of £6 - £24 million for injury and £202 - £809 million for illness, the result is between £1 million and £3 million, for injury, and £26 - £105 million for illness. This is an average; for some employers who recruit regularly, some recruitment and training costs may be fixed and not depend on numbers, and so our figure would be an overestimate. On the other hand, we have not accounted for possible costs due to the need to modify equipment.

126 It should be noted that work-related illness causes much more additional recruitment than workplace injuries, but this is still a small proportion of the total. The annual total amount of labour turnover is estimated to be around 7 million[52] per year, so staff turnover caused by work-related illness represents only 2% of the total. Insofar as there are fixed costs, therefore, a reduction in the number leaving because of work-related ill health is likely to have only a small effect on total recruitment and training costs.[53]

Damage associated with workplace injuries

127 Information on the scale of the damage to equipment, goods and materials associated with events causing injury is very limited. In the APAU case studies, the average cost of damage in the injury events was very much less than the average for non-injury events, because a large proportion of the injuries were caused by slips, falls or lifting, which involve little damage. The average cost of damage, once the costs of recovering production and replacing labour are excluded (since they are estimated separately here), ranged from less than £1.20 to £3.60 (in 1995/96 prices). However, the injuries recorded in the case studies cannot be considered representative of those in the LFS, since almost all in the case studies were minor and not reportable.

128 RIDDOR statistics for 1995/96 show that over 55% of all officially reported injuries are slips, trips or falls on level ground or from a height, or from handling or lifting. If we apply this proportion to the LFS reportable injuries (over 3 days) and assume an average cost of £1.20 (for most sectors, but see Table 54 in Appendix 5 for variations among industries) for these and minor injuries, this gives an overall cost of £1 million.

129 For the remaining 45% of reportable injuries, the average cost of damage is likely to be rather larger. We might assume that it is the same as that for non-injury accidents, ie £27.50 to £237.20 (see Table 54 in Appendix 5). Applying this average cost of damage gives a further cost of between £5 million and £40 million, resulting into a cost of between £6 million and £41 million overall.

Total costs due to workplace injuries and work-related ill health

130 Putting together the 1995/96 cost of damage £6 - £41 million, cost of maintaining output net of savings on payments to absentees £237 million, administration £27 million and recruitment £7 - £27 million gives a total cost to employers of injuries of £276 - £332 million and an average cost per injury of £267 - £321. Including the NPV of future costs, this equals £270 - £308 million.

131 The total cost to employers of work-related illness, putting together the costs of sick pay, administration and recruitment, is £986 - £1672 million in 1995/96. Including the NPV of future costs, this equals £784 - £862 million.

Non-injury accidents

132 It was mentioned in Chapter 2 that we have applied the ratio of non-injury accidents to injuries from the APAU case studies to the total number of injuries from the LFS, in order to obtain an overall estimate of the total number of non-injury accidents. This estimate is subject to uncertainty for the reasons explained in Chapter 2.

133 Our case studies[54] and Monnery (1999) allow us to make industry specific estimates for five industries: construction, health and social work, transport, oil production and finance. Even here, though, the industry estimate is only based on the experience of one firm. For the other industries we have estimated a range (see Appendix 5).

134 The construction case study found that for every injury there were 64 preventable non-injury events. Applying this ratio to the LFS data gives a total of 7.1 million non-injury accidents. The average cost per non-injury event was £23 in 1990 prices; adjusting this to 1995/96 prices using the GDP deflator at market prices gives £27.50 per event, making a total cost of £196 million.

135 Besides the immediate financial costs of non-injury accidents, there are administrative costs in dealing with breakdowns, damage and insurance, and the cost of time spent by managers and administrative staff. The average administrative cost of dealing with construction incidents was £16 in 1991 prices, or £18.90 in 1995/96 - giving a further £134 million. The ratio of administration costs to other costs is larger than in other sectors, indicating a high proportion of management time spent dealing with accidental events. This is reinforced by the higher frequency of non-injury accidents in construction, compared to the other case studies.[55]

136 In 1995/96, the total value of actual UKCS oil and natural gas liquids (NGLs) production was some £10.7 billion. Oil production was lower than earlier internal DTI forecasts, and it is estimated that the actual level of production might have been 2-3% higher in the absence of preventable accidental events. (This margin is probably lower than in some recent years.) This represents a revenue reduction of some £210 - £320 million to the British oil and gas industry. In the oil case study, 7% of the cost due to accidental events was on administration, and 10% was the direct cost of insurance, leaving £174 - £191 million as the financial costs (of which about two thirds, in the case study, was the value of deferred production in that year).[56]

137 We assume that the hospital case study and the transport company are broadly representative of health and social work and of the transport industry in general. However, the injury/non-injury ratio in the transport study was not available and therefore we use the general industry one discussed in a later paragraph. This gives a total of 2.1 million non-injury accidents in health and social work, and 1.6 million in transport. The average cost per non-injury event was £46.70 and £44.30 in the two sectors respectively, in 1995/96 prices, making a total cost of £99 million in health and social work, and £72 million in transport. The average cost of administration and management time spent dealing with these incidents gives a further £2.7 million and £2 - £33 million respectively.

138 Monnery (1999) applies the APAU methodology to a financial services organisation. The study finds that there is no definable accident triangle ratio (the ratio injury/non-injury is 1:0.6). This may be explained by the nature of the work, which does not create significant amounts of non-injury accidents. We apply this ratio to the LFS injuries for the finance and business sector, to obtain a total of about 41 000 non-injury accidents. Monnery does not provide information on the average cost of damage from non-injuries and therefore we have adopted the

same assumptions as for the other industries. This suggests a total financial cost of non-injury accidents of £1.1 - £9.7 million, and an administrative cost of less than £0.1 - £0.8 million for this sector.

139 As far as the other sectors are concerned, the ratios of non-injury accidents to injuries in the creamery and the hospital are fairly close (24:1 and 18:1), and we have therefore assumed a ratio of 20:1. That suggests a total of almost 13.1 million non-injury events across all industries excluding construction, oil production, health and social work, transport and finance.

140 Average costs of non-injury accidents in the case studies include the loss of equipment and materials, and the cost of rescheduling to recover production. These costs show some variation in the case studies. Given that we do not have enough information to calculate an overall average, and with the uncertainty associated with extrapolating from one firm to the whole sector, we have used a range of £27.50 (construction case study) to £237.20 (creamery case study) per event[57] to calculate a total financial cost to the other sectors of £0.4 - £3.1 billion. It should be noted that the range across industry is likely to be greater than this. In more capital intensive industries or ones with high-value products, damage costs may be much more, while in other sectors the cost may be less.

141 The average administrative cost per event ranged from £1.30 to £20.20 adding a further £16 - £264 million.

142 The total cost of non-injury accidents is therefore estimated to be between £1.1 and £4.1 billion. This is about 0.06 - 0.23% of UK turnover in 1996. A comparison might be made with estimates of the cost of thefts - also an 'unplanned' loss. The Association of British Insurers (ABI) reports £191 million paid in claims due to commercial thefts in UK, 1996, which is 0.01% of turnover.

Total uninsured costs

143 Table 27 presents a summary of all these costs. The total cost (excluding insurance and compensation, and including the net present value of future costs) to employers of injury and ill health is estimated to be £1.1 - 1.2 billion. In 1995/96, costs are estimated to be between £1.3 billion and £2 billion. The table shows that illness creates a greater cost than injury - because of the larger number of workers affected, and days lost. However, some of the cost associated with ill health is due to the long-term effects of injuries in previous years.

144 Adding a further £1.1 - £4.1 billion for non-injury events makes a total uninsured cost in 1995/96 of between £2.3 billion and £6.1 billion. This shows that a health and safety system has implications beyond reducing the cost of injuries, which, on its own, might not appear particularly significant.[58]

Table 27 Total uninsured costs to employers of workplace injuries and non-injury accidents and work-related ill health.

	Injury		*Non-injury accidents (£m)*	*Illness*	
	Costs in 1995/96 (£m)	*NPV of future costs (£m)[(a)]*		*Costs in 1995/96 (£m)*	*NPV of future costs (£m)[(a)]*
Damage	6 - 41	-	902 - 3 667	-	-
Extra production costs	237	-	-	682	-
Administration	27	-	170 - 451	76	-
Recruitment	7 - 27	-6 - -24	-	228 - 914	-202 - -809
Total	276 - 332	-6 - -24		986 - 1 672	-202 - -809
	270 - 308		1 073 - 4 118	784 - 862	

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

Compensation and insurance

145 All the costs in Table 27 are uninsured costs, and do not include liability compensation paid to individuals and legal costs.

146 All employers (except the Government) in the UK are required by law to take out employers' liability (EL) insurance cover. We need to add in the cost of this, plus the cost of additional insurance bought by companies to cover losses which may result from workplace accidents.

147 Figures from ABI show that EL claims in 1995 were about £720 million in Great Britain (£738 million in the UK).[59] EL claims include both payments to individuals and legal costs.

148 To apportion this between injuries and ill health is difficult. The ABI data reveal that, in 1995, 25% of the EL claims were for 'occupational diseases'. However, this is unlikely to cover all ill-health claims. We therefore assume that ill health accounts for a third of the total EL claims, or £240 million.

149 To approximate the cost of insurance, to the claims we need to add the insurance companies' administration costs and profits from dealing with the claims, which are also covered by the premium paid by employers. We assume that administration costs and profits are about 15% of gross claims (£108 million, two thirds of which we apportion to injuries and one third to ill health).

150 Other insurance policies also provide cover against loss caused by non-injury accidents at work. In 1995 claims for commercial fire damage and business interruption following fire damage were £480 million (£492 million in UK) and £159 million (£163 million in UK), respectively. However, about 50% of this is estimated

to have been caused by arson rather than accidental damage.[60] Deducting this percentage leaves £240 million and £79.5 million, respectively. As before, to this we add 15% of the claims (£48 million) for insurance administrative costs and profits.

151 Overall, therefore, we have a total cost of insurance of £1.2 billion.[61] This should be seen as a minimum figure, since it excludes other policies which will also cover work accident risk, such as motor insurance. We estimate that about £276 million of the total of £1.2 billion relates to ill health. To put this into context, total liability claims (which include employers' liability claims) incurred in the UK in 1995 amounted to £1.4 billion according to figures published by the ABI.[62]

152 Comparing this total cost of insurance against the loss due to workplace injuries and non-injury accidents and work-related ill health, with the estimated total uninsured financial costs given earlier of £2.3 - £6.1 billion, gives a ratio of between 2:1 and 4:1, which is lower than found in the APAU case studies (this ratio in the case studies ranged from 8:1 up to 36:1).

153 It should be noted that, although we have included the insured costs of low-frequency catastrophic events, such events also have substantial uninsured costs, which are not covered in our estimates.

Unquantifiable costs

154 Even where there is no absence, there may be costs to employers in terms of lower productivity, which may be particularly true for small organisations.[63]

155 Some illnesses, more than injuries, may not be severe enough to prompt absence (eg stress, and some musculoskeletal problems) but could affect work. Tables 9-11 show that nearly 52% of those with a work-related illness who had worked in the last year said it had not caused them to have any days off work. For those who do have time off, there may be effects upon their productivity - both after (as for injuries) and before a spell of absence.

156 The outcome is that people may be working when less than completely fit. We are, however, unable to assess the extent of this and quantify the consequences for production.

Conclusion

157 Table 28 shows that the total cost, including insurance, to employers is estimated to be between £3.5 billion and £7.3 billion in 1995/96 (between £3.3 billion and £6.5 billion when including the net present value of costs in future years). This is equal to between around 4% and 8% of gross trading profit.[64]

Table 28 Total costs to employers of workplace injuries and non-injury accidents, and work-related illness (including insurance)

			Administration and recruitment costs			*Totals*		
	Damage (£m)	*Production costs (£m)*	*Costs in 1995/96 (£m)*	*NPV of future costs (£m)[a]*	*Insurance (£m)*	*Costs in 1995/96 (£m)*	*NPV of future costs (£m)[a]*	*Total (£m)*
Injury	6 - 41	237	34 - 55	-6 - -24	552	828 - 884	-6 - -24	822 - 860
Illness	-	682	305 - 990	-202 - -809	276	1 265 - 1 950	-202 - -809	1 062 - 1 141
Non-injury	902 - 3 667	-	170 - 451	-	367	1 440 - 4 485	-	1 440 - 4 485
Total			509 - 1 496	-208 - -834		3 533 - 7 319	-208 - -834	
	908 - 3 708	918	301 - 662		1 195			3 324 - 6 486

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

Unit cost analysis

158 The figures (including the NPV of future costs) from Table 28 can be expressed as cost per worker or per accident:

(a) the total cost of workplace injuries and non-injury accidents and work-related ill health to employers is equal to between £143 and £297 per worker employed;
(b) each non-injury accident costs an average of between £58 and £179;
(c) each person who has to take time off (excluding the never return) because of workplace injury costs between £1226 and £1283;
(d) the average cost of an injury is between £795 and £832;
(e) each person who has to take time off because of work-related illness costs between £1701 and £1827; and
(f) each of the 1.3 million workers with work-related illness costs employers £820 - £880.

159 Table 29 shows typical unit costs of different types of injury and non-injury accidental events. The unit costs can be used to compare benefits of health and safety measures introduced by employers, with their likely cost.

Table 29 Typical unit costs to employers by accident type[a]

	All injuries (£)	*Serious or major[b] (£)*	*Other reportable (£)*	*Other lost time (3 days or less) (£)*	*Non-injury (£)*
Damage	23	23	23	23	95
Extra production costs	229	2 327	374	13	-
Administration	28	286	46	2	13
Insurance and compensation	534	12 449	-	-	15
Total	814	15 085	443	37	123

Notes
Totals may not add up due to rounding.
(a) Typical unit costs include the net present value of future costs.
(b) The LFS 1995/96 does not provide information on the number of 'major' injuries as defined by RIDDOR 85. On the assumption that there is a relationship between seriousness of the injury and duration of absence, all injury estimates where absence is more than two months, and all of those causing workers never to return to work, are considered serious and major injuries. Because unit cost estimates for serious or major injuries are affected by the relatively small sample size of those who never return to work, they should be treated with caution.

Chapter 5 Costs to society

160 The costs to society include those borne by the individuals (and their families and friends) and employers directly affected. However, as noted in Chapter 1, the total cost to society is not a simple aggregation of these costs. Firstly, there is the issue of transfer payments. For example, social security payments represent income to individuals but are a cost to the taxpayer. They are a transfer between groups in society and involve no resource cost to society as a whole. Secondly, there are costs borne by the taxpayer in general, such as for National Health Service treatment and the administration of disablement and other social security benefits.

161 We consider here only direct costs to society. We do not attempt to estimate so-called 'second round effects', such as employers passing on the costs of workplace injuries and non-injury accidents and work-related ill health in the form of higher prices, or impacts on investment and employment.

162 We have broken down the costs to society into three components:

(a) loss of output;
(b) other resource costs (damage, administration, medical treatment and HSE/local authority investigations); and
(c) human costs.

Loss of output

163 The loss of output to society resulting from absence or withdrawal from the

labour force encompasses the previously estimated loss of income to individuals and loss of output to employers. However, these costs included transfers from the state which reduced the cost to individuals and employers. For example, the cost to individuals is reduced by the provision of state benefits. Also, some of their lost income would have gone in tax. For employers, the cost of loss of output is eased by state funded SSP. State benefits, SSP and lost tax are not, however, costs to society as a whole. Since there is no need to adjust for these transfers, the estimation of costs to society as a whole is more straightforward.

164 It was noted in Chapter 4 that we could equate the value of the marginal output loss with the value of the marginal input, ie the cost to the employer of employing the worker (comprising wage and non-wage labour costs). We do not have direct information on the marginal costs so we take average pay. Multiplying this[65] by the number of days off gives a total cost of £489 million for the total of 6.1 million days absence due to injuries (excluding part days), and £1464 million for the total of 18 million days lost due to illness.

165 For those forced to retire from the labour force we adopt a similar approach. The average age of these people was 49, whereas for those killed at work it was 43. Compared to the state pension age, this gives a loss of 12 and 21 expected working years, respectively. For the over 27 000 people leaving the labour force,[66] and using average earnings by occupation, this comes to a total of £5 billion,[67] of which £242 million is incurred in 1995/96, as shown in Table 30.

Table 30 Output loss from workers leaving the labour force

Cause of withdrawal	*Number*	*Costs in 1995/96 (£m)[(a)]*	*Lost years of work*	*NPV of future costs (£m)*
Fatality	258	2.3	21	61
Injury	3 000	29.3	12	532
Ill health	24 000	210.8	12	4 124
Total	27 258	242.4		4 717

Notes
Totals may not add up due to rounding.
(a) We do not have information on the time of the year at which people leave the labour market due to their work-related injury/illness. In order to calculate these costs for 1995/96 we have assumed that, on average, they leave at mid-year.

166 For these figures, we have not taken account of:

(a) losses to people who have had to give up work in order to care for an ill or incapacitated person; or
(b) lower productivity of ill or injured people who continue to work.

Other resource costs

Damage

167 The cost to society is the same as the cost to employers, previously estimated in Chapter 4. This includes:

(a) the damage cost of non-injury accidents (estimated at £0.9 - £3.7 billion, paragraph 139); and
(b) the damage cost of injuries (estimated at £6 - £41 million, paragraph 128).

168 As noted in Chapter 4, these costs do not include the damage cost of low-frequency, high-consequence events. The cost of this was proxied by insurance claims for risks such as fire (estimated to be £320 million - fire plus business interruption), plus about 15% (£48 million) for administrative costs. Here we subtract the latter since it is included under the next cost heading. This leaves an overall cost estimate of £1.2 - £3.9 billion.

169 Some accidental events may also cause damage to the environment. This may not be a cost to the producer but is a social cost. We have not attempted to estimate this cost.

Administration

170 The cost of additional administration includes some of the costs to employers estimated in Chapter 4. In 1995/96, these are:

(a) £27 million administration and £7 - £27 million recruitment costs due to injuries;
(b) £76 million administration and £228 - £914 million recruitment costs due to ill health; and
(c) £170 - £451 million administration costs due to non-injury accidents.

171 This gives a total of £509 - £1496 million. We need to add the element of insurance costs which cover administrative costs. We estimate that this is about 15% of the total paid in claims, therefore about £108 million for the provision of employers' liability and about £48 million for other policies such as fire. Together these give a total of £665 - £1652 million. When including the net present value of lower future costs of recruiting, this amount reduces to a total of £457 - £818 million.

172 There is a further cost which is incurred by the taxpayer in general. In paying benefits to individuals and Statutory Sick Pay to employers, the Department of Social Security incurs administration costs.[68] We assume that for all absentees over three days this is £6.5 per week, or £1.3 per day, and apply it to all absences over three days. The total (short-term) costs come to £31 million.

173 For people on long-term benefits the unit costs of administration may be lower, but they may be claiming several types of benefit. The annual cost to the DSS in administration of benefits to everyone out of the labour market (and families of people dying) would be £6.5 x 52 weeks = £338. Discounting the costs over 12 years at 6%, and increasing the costs by 1.8% per year (see Chapter 3) to a net present value gives around £3300 per person. The total (long-term) cost comes to £86 million as shown in Table 31, of which £5 million is incurred in 1995/96 and the rest (£81 million) is the net present value of future costs.

174 Putting together the short and the long-term costs gives a total of £117 million for DSS administration, of which £36 million is incurred in 1995/96. These estimates may be an overestimate, because some people would have received benefits anyway.

Table 31 DSS administration costs for people leaving the workforce

Reason for leaving labour market	*No of people[a]*	*Costs in 1995/96 (£m)[b]*	*Lost years of work*	*NPV of future costs (£m)*
Fatalities	258	0.04	21	1.2
Injury	3 000	0.5	12	8.6
Ill health	24 000	4.1	12	71.2
Total	27 258	4.6		80.9

Notes
Totals may not add up due to rounding.
(a) Injury and ill health estimates are rounded.
(b) We do not have information on the time of year at which people leave the labour market due to their work-related injury/illness. In order to calculate these costs for 1995/96 we have assumed that, on average, they leave at mid-year.

175 Adding up all the elements of administrative costs gives a total of £749 -£1735 million incurred in 1995/96 (£622 - £983 million when including the net present value of future costs) as shown in Table 32. Of this, about 25% is for non-injury accidents; administration costs for workplace injuries and ill health is £529 - £1235 million in 1995/96 (£401 - £482 million if including the NPV of future costs).

Table 32 Total administration costs

	Injuries and non-injury accidents (£m)		*Ill health (£m)*		*Total (£m)*	
Cost of:	*1995/96*	*NPV of future costs[a]*	*1995/96*	*NPV of future costs[a]*	*1995/96*	*NPV of future costs[a]*
Employer administration	198 - 478	-	76	-	274 - 554	-
Recruitment	7 - 27	-6 - -24	228 - 914	-202 - -809	235 - 941	-208 - -834
Insurance/legal	168	-	36	-	204	-
DSS benefits to absentees	8	-	23	-	31	-
Total	380 - 681	-6 - -24	364 - 1 050	-202 - -809	745 - 1 731	-208 - -834
of which for non-injury events	220 - 501					
DSS administration for people leaving the workforce	1	10	4	71	5	81
Total costs	381 - 682	4 - -14	368 - 1 054	-131 - -738	749 - 1 735	-127 - -753

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

Medical treatment

176 Medical treatment of work injuries and work-related ill health is a use of resources that could be exploited elsewhere. The cost of providing medical treatment has not been included in other sections of this report (except the cost of prescriptions to individuals). This is because in Great Britain the cost of medical treatment is largely publicly funded, and therefore paid for by taxpayers in general. (In some other countries, a larger share of the cost of health care is funded by employers and/or individuals - however, the loss to society is the same whoever pays).

177 Our assumptions used in estimating the cost of providing medical treatment are set out in detail in Appendix 3. It is worth noting that:

(a) we assume the longer the duration of incapacity, the more treatment received;
(b) we assume that all those with an illness will need some treatment even where there is no absence, and that the treatment cost for injuries is minimal where people are away from work less than a day;
(c) we use Department of Health/NHS data on the typical costs of a GP consultation and hospital treatment;[69]
(d) for the long-term sick who have withdrawn from work we assume an annual cost based upon two visits to a GP per year, plus one outpatient visit and regular medication (2.5 prescriptions); and
(e) our estimates do not include people being treated into retirement age.

178 Table 33 shows the assumed costs for each absence duration band, from which we derive the total costs to be between £179 million and £674 million.

Table 33 Costs of NHS treatment for victims of workplace injury and work-related illness

	Treatment cost		*Injuries*			*Ill health*		
Duration of absence	*Min (£)*	*Max (£)*	*No (000s)*	*Min (£)*	*Max (£m)*	*No (000s)*	*Min (£)*	*Max (£m)*
Ill but no absence	27.30	27.30	-	-	-	672	19	19
1-5 days	27.30	78	399	11	32	191	5	15
1-4 weeks	105	588	160	17	95	208	23	126
1-3 months	183	1 044	76	14	81	150	28	157
3-6 months	450	1 283	18	9	24	42	19	54
Over 6 months	956	1 922	3	3	6	34	32	65
Fatal	189	378	0.26	0.05	0.10	-	-	-
Total			656	54	238	1 296	125	436

Notes
Totals may not add up due to rounding.

179 For those who are forced to leave the workforce because of work-related injuries or ill health, we assume a cost of £114 per person per year. Over 12 years, £114 per year has a net present value of around £1100, assuming 1.8% real increase per year in health care costs and discounting at 6%. So for about 27 000 people the 1995/96 cost is £2 million and the net present value of future costs is £27 million.

Table 34 Cost of NHS medical treatment for people leaving the workforce due to workplace injury and work-related illness

Reason for leaving labour market	*Number of people*	*Total cost in 1995/96 (£m)[(a)]*	*NPV of future costs (£m)*
Injury	3 000	0.2	2.9
Illness	24 000	1.4	24.0
Total	27 000	1.6	26.9

Notes
Totals may not add up due to rounding.
(a) We do not have information on the time of year at which people leave the labour market due to their work-related injury/illness. In order to calculate these costs for 1995/96 we have assumed that, on average, they leave at mid-year.

180 It is worth noting that excluding the costs after retirement age from our calculations could be very substantial, because even where a complaint does not have a serious effect on work it may aggravate the effects of other ill health associated with age.[70]

Costs of investigating injury and non-injury accidents

181 To the above we need to add the investigation costs to HSE and local authorities. The estimates for HSE resources spent on injuries and non-injury accident investigations can be broken down as follows: in 1995/96 about 4.7% of total resources (£178 million) were spent on investigations (injury and non-injury accidents and complaints). Of this, about 55% was spent investigating injury and non-injury accidents, giving a total of £4.6 million (of which staff costs are about £3 million).

182 Precise figures on how much local authorities spend investigating injury and non-injury accidents are not available. However, in 1995/96 local authorities were responsible for an estimated 59% of all accident investigations. This means that local authorities carried out about 44% more investigations than HSE and so we assume that their costs are 44% higher. The total cost to local authorities is therefore £6.6 million. This gives a total cost to all enforcing authorities of £11.2 million in 1995/96.

Total resource costs

183 Putting together all the total resource costs gives between £9 billion and £12.6 billion, shown in Table 35. After deducting the net present value of future costs, we obtain costs incurred in 1995/96 (a total of £4.4 - £8.6 billion). This is equal to between 0.6% and 1.2% of Britain's GDP[71] in the same year (if we were to include future costs, a figure of 1.3% - 1.8% of GDP in 1995/96 would result).

Table 35 Total resource costs

	1995/96 cost (£m)	*NPV of future costs[a] (£m)*	*Total costs (£m)*
Damage due to injuries	6 - 41	-	6 - 41
Loss in non-injury accidents	902 - 3 667	-	902 - 3 667
Insured loss	320	-	320
Administration	749 - 1 735	-127 - -753	622 - 983
HSE and LA investigations	11	-	11
Medical treatment (short term)	179 - 674	-	179 - 674
Medical treatment (long term)	2	27	28
Loss of output			
- absence	1 953	-	1 953
- people leaving work	242	4 717	4 959
Total	4 364 - 8 646	4 616 - 3 991	8 980 - 12 637

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

Table 36 Total resource costs of workplace injuries and work-related illness

Category of cost	*Caused by injury*		*Caused by illness*	
	Costs in 1995/96 (£m)	*NPV of future costs[a] (£m)*	*Costs in 1995/96 (£m)*	*NPV of future costs[a] (£m)*
Property damage	6 - 41	-	-	-
Admin and recruitment	166 - 186	4 - -14	368 - 1 054	-131 - -738
HSE and LA investigations	11	-	-	-
Medical treatment	54 - 238	3	127 - 437	24
Lost output	521	593	1 675	4 124
Total	758 - 998	599 - 581	2 170 - 3 166	4 017 - 3 410
	1 357 - 1 579		6 187 - 6 576	

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

184 Table 36 shows a breakdown of resource costs: the total costs of injuries in 1995/96 is £0.8 - £1 billion, whereas illness costs £2.2 - £3.2 billion. Including the NPV of future costs, total cost of injuries is £1.4 - £1.6 billion and total cost of illness is £6.2 - £6.6 billion. Non-injury accidents cost £1.4 - £4.5 billion (see Chapter 4).

Total costs to society

185 We have to also include the 'human costs', ie the costs of pain, grief and suffering to individuals, their family and friends. In Chapter 3 this was estimated at £5.5 billion.

Table 37 Total costs to society of workplace injuries, non-injury accidents and work-related illness

Cause	*Output loss (£bn)*		*Other resource costs (£bn)*		*Subjective costs (£bn)*	*Total costs (£bn)*	
	1995/96	*NPV of future costs*	*1995/96*	*NPV of future costs[(a)]*		*1995/96*	*NPV of future costs[(a)]*
Injury	0.5	0.6	0.2 - 0.5	0.0	1.5	2.2 - 2.5	0.6
Non-injury	-	-	1.4 - 4.5	-	-	1.4 - 4.5	-
Illness	1.7	4.1	0.5 - 1.5	-0.1 - -0.7	4.0	6.2 - 7.2	4.0 - 3.4
Total	2.2	4.7	2.2 - 6.5	-0.1 - -0.7	5.5	9.9 - 14.1	4.6 - 4.0

Notes
Totals may not add up due to rounding.
(a) See footnote (a) to Table 1.

186 The sum of output and other resource costs and the human costs is £14.5 - £18.1 billion, shown in Table 37. To put the total cost into perspective, when deducting the net present value cost estimates to account for costs occurring in 1995/96 only, the total cost equals £9.9 - £14.1 billion, which is equivalent to 1.4% - 2.0% of Britain's GDP in 1995/96. When including the NPV of future costs, the percentages become 2.1% to 2.6% (as a comparison, the average rate of growth of GDP between 1986 and 1996 was 2.2% pa).

187 This is equal to £508- £636 each year for every person in the workforce. For each person in the working population with a work-related illness, the average social cost is £7861- £8161.

188 It should be noted that the British GDP would not necessarily rise by 1.4% to 2.0% if all work-related sickness and workplace injury and non-injury accidents could be prevented, since prevention would involve costs. These are estimated by HSE as part of the process of regulatory impact assessment when proposals for new regulations are put forward. The figures do show, though, that we could use our resources better than we do today.

189 Table 38 shows the typical unit costs to society for different types of injuries and for non-injury accidents. The unit costs can be used to estimate the benefits of proposed measures which aim to improve occupational health and safety, and to compare such benefits with the cost of Government intervention.

Table 38 Typical unit costs to society by accident type[a]

	Lost output (£)	*Welfare loss (£)*	*Resource cost (£)*	*Total cost (£)*
All injuries	1 077	1 439	279	2 796
Fatalities	245 726	766 000	5 952	1 017 678
Serious or major injuries[b]	10 328	15 929	3 701	29 957
Other reportable	1 661	1 550	315	3 526
Other injuries	58	125	32	215
Non-injury accidents	-	-	123	123

(a) Typical unit costs include the net present value of future costs.
(b) The LFS 1995/96 does not provide information on the number of 'major' injuries as defined by RIDDOR 85. On the assumption that there is a relationship between seriousness of the injury and duration of absence, all injury estimates where absence is more than two months, and all of those causing workers never to return to work, are considered serious and major injuries. Because unit cost estimates for serious or major injuries are affected by the relatively small sample size of those who never return to work, they should be treated with caution.

Chapter 6
Overview and implications

190 Table 39 shows the total costs from Chapters 3, 4 and 5.

Table 39 Summary: Costs of workplace injuries and non-injury accidents and work-related illness to individuals, employers and society[a]

	Workplace injuries (£ billions)		*Work-related illness (£ billions)*		*Non-injury accidents (£ billions)*	*Total (£ billions)*	
	1995/96 cost	*NPV of future costs*	*1995/96 cost*	*NPV of future costs[b]*		*1995/96 cost*	*NPV of future costs[b]*
Costs to individuals	1.3	0.2	4.3	1.2	-	5.6	1.4
Costs to employers	0.8 - 0.9	0.0	1.3 - 1.9	-0.2 - -0.8	1.4 - 4.5	3.5 - 7.3	-0.2 - -0.8
Costs to society	2.2 - 2.5	0.6	6.2 - 7.2	4.0 - 3.4	1.4 - 4.5	9.9 - 14.1	4.6 - 4.0

Notes
Totals may not add up due to rounding.
(a) Total includes estimates of human costs
(b) See footnote (a) to Table 1.

Figure 12 Relative costs of injuries, illness and non-injury accidents for 1995/96

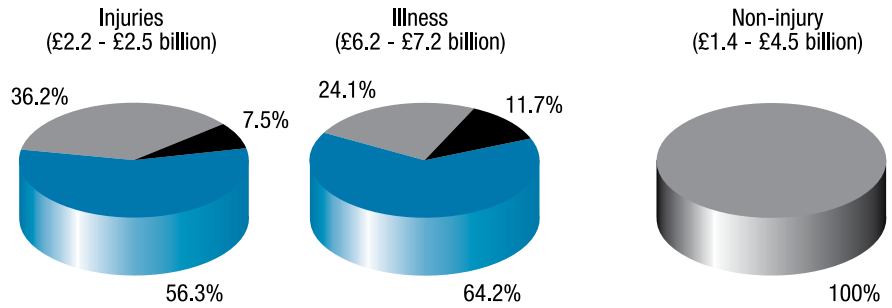
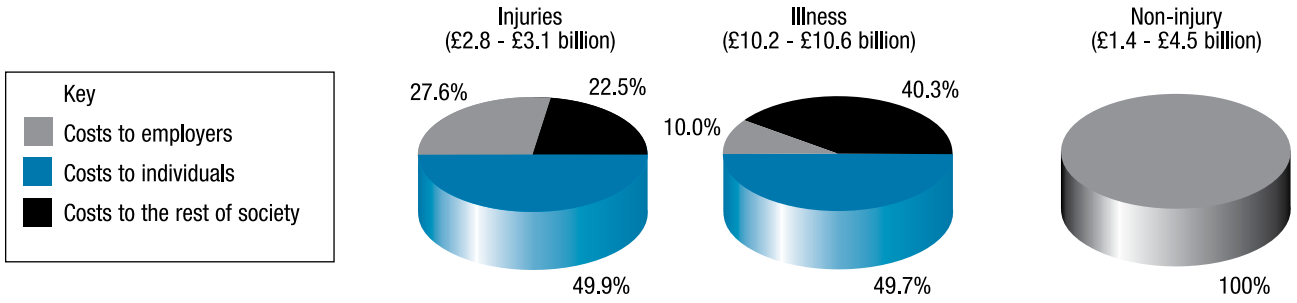


Figure 13 Relative costs of injuries, illness and non-injury accidents for 1995/96 plus NPV



191 Figures 12-13 illustrate who bears the costs (based on the mid-points of the estimated ranges). The existence of 'external' costs (8% in 1995/96; 27%, when including the NPV of future costs), ie those borne by the rest of society, provides a case for public regulation of workplace health and safety. The figures also show a sharp contrast between injury and non-injury accidents, where employers bear 79% of the total 1995/96 costs, and illness where they bear 24% of the total 1995/96 costs (62% for injury plus non-injury incidents, and 11% for illness when including the NPV of future costs). Individuals bear 56% of the injury costs in 1995/96, and 65% of the illness costs in 1995/96 (52% for injury, and 52% for illness when including the NPV of future costs).

192 The estimated costs show that employers could make considerable gains from reducing the number of workplace injuries and non-injury accidents. There are strong incentives to employers to introduce systems that will reduce the likelihood of injury and non-injury events taking place.

193 The cost to employers of ill health is smaller, but is still substantial. However, there are various reasons why investment by employers in measures to prevent ill health might still be less than optimal:

(a) *information deficiencies*: there tends to be a delay between cause and effect, making identification of the link more difficult;
(b) *short horizons*: tight financial constraints may lead firms to disregard costs which will only be incurred in the distant future;
(c) *free-riding*: as people change jobs, some of the costs of absences fall on other employers. This means that, while there is a collective benefit to employers from improving workers' health, those employers responsible for the conditions that cause illness will not necessarily suffer the costs.

194 While the cost of non-injury accidents is borne only by employers, the costs of

work-related ill health fall most heavily on individuals and society. This means that, even overcoming the previous problems, investment by employers will be less than is socially optimal.

195 As discussed in Chapter 1, even though much of the reported illness is due to past working conditions, we do not have any information on which to estimate the lag between cause (work conditions) and effect (absence), so we have treated absence due to illness in the same way as absence due to injury, implicitly assuming no lag. This will overstate the potential gains from measures to improve workplace conditions.

196 However, much of the cost to employers caused by illness can be linked to current conditions. An analysis of the SWI95 estimates shows that the illnesses that take a very long time to develop (eg deafness, pneumoconiosis) account for a fairly small proportion of days lost. The opposite is true for illness that can be linked to recent exposure (eg stress, skin complaints, headaches). Table 17 shows that the illnesses responsible for the largest proportion of days lost are musculoskeletal disorders (about 55% of total days lost). While some of these may be due to conditions over a long time or events in the past, changes in current working conditions could have an immediate effect on absences.

197 The division of total costs between industries, regions, and occupations, is shown in the tables in Appendix 8. Manufacturing (19% - 23% of costs to society in 1995/96, 21% - 24% when including the NPV of future costs) and health and social work (16% - 20% of costs to society in 1995/96; 20% - 25% when including the NPV of future costs) seem to generate the highest costs to society among industries. Between 22% and 29% of the costs to employers in 1995/96 (22% - 30% when including the NPV of future costs) occur in the manufacturing industry, mainly due to damage from non-injury accidents.

198 Cost shares will vary over time depending on a number of factors: the prevailing institutional arrangements (eg for victims to claim compensation from employers); the difference between sick pay and normal earnings, and between state benefits and expected earnings; and whether medical treatment is publicly or privately paid.

Chapter 7 Comparison with previous messages

199 This chapter compares the results in this report with previous estimates of the cost of workplace injuries and non-injury accidents and of work-related ill health to Great Britain. There are three major studies which estimated this cost. The most recent is the study to which this is an update, by Davies and Teasdale (1994) with estimates relating to 1990. The second is a study by Morgan and Davies (1981) who updated previous estimates by Department of Employment economists for the Robens Report in 1972, which constitutes the third of these studies. Table 40 presents the results from these studies alongside those from this report.

Table 40 Comparisons of estimates of the economic and social costs of workplace injuries and non-injury accidents and work-related ill health in Great Britain

Study	*Base year*	*Cost to the economy (% of national output)*	*Cost to society - includes subjective costs (% of national output)*
Robens Report	1969	0.5	0.9
Morgan and Davies	1978/79	0.5 - 0.9	0.8 - 1.2
Davies and Teasdale	1990	1.3 - 2.3	2.0 - 3.0
HSE, 1999	1995/96	1.3 - 1.8[(a)]	2.1 - 2.6[(a)]

(a) Percentages are calculated including the NPV of future costs, for ease of comparison with previous studies.

200 The calculations for the Robens Report produced an estimated resource cost of injuries and prescribed industrial diseases of £209 million (0.5% of the GNP), and a subjective cost of £1127 million, a total equal to near 0.9% of the 1969 GNP.

201 Morgan and Davies followed the same approach and used the same basic data sets as the previous estimates. The study covered the cost of injuries to employees involving over-3-day absences from work plus a very limited set of industrial diseases recognised under the industrial injury insurance arrangements prevailing at the time. Estimates were also made of injuries involving lesser periods of absence from work, and non-injury accidents, based on extrapolation from previous US and UK studies. As well as the resource costs arising from lost output, damage to equipment and materials, and the costs of hiring and training replacement labour, the study also included an allowance for human costs, which were based on social security payments for those unable to support themselves (see Davies et al, 1995).

202 Morgan and Davies estimated a total resource cost to Great Britain in 1978/79 of between 0.5% and 0.9% of that year's GNP. The total cost to society (which includes human costs) equaled between 0.8% and 1.2% of the GNP.

203 Those HSE estimates were updated by Davies and Teasdale (1994) who made a number of significant changes in method and data sources:

(a) use of the results from the trailer to the 1990 LFS on work-related injury and ill health;
(b) use of the results from the APAU case studies (HSE, 1993); and
(c) a new approach to the valuation of human costs, where values were based on the results of research into individuals' WTP for marginal reductions in the risk of death and relative utility loss associated with non-fatal injuries. This led to higher values.

204 Davies and Teasdale estimated the resource cost to the economy to be between £7 billion and £12 billion in 1990 prices (1.3% and 2.3% of GDP; this included the NPV of future costs). This range arose mainly from uncertainty about the scale of loss associated with non-injury accidents. Adding the cost of pain, grief and suffering, estimated at around £4.3 billion, gave a total cost to society of between £11 billion and £16 billion in 1990 prices, equivalent to about 2% to 3% of GDP (this included the NPV of future costs).

205 Cost estimates in 1990 were higher than previous estimates, even though the

number of workplace injuries fell between the two studies. This was due in part to the new approach to valuing human costs, but also to the more comprehensive information on: the number of minor, non-reportable injuries and non-injury accidents; the extent of work-related ill health; and the number of people having to leave the workforce.

206 In our study, we have adopted the Davies and Teasdale approach for the 1995/96 data, in particular:

(a) the use of LFS data (with the differences between the 1990 and 1995/96 surveys highlighted in Appendix 1);
(b) the use of HSE (1993) case studies (with the addition of Monnery, 1999); and
(c) a similar method to value losses (with the incorporation of recent literature on monetary values for pain, grief and suffering).

207 Cost estimates from our study are slightly higher at the bottom of the range, and lower at the top end, ie 2.1% to 2.6% of GDP (including human costs and non-injury incidents and also, for ease of comparison, the estimates of future impacts), than those produced by Davies and Teasdale. The narrower range of our estimates, compared with Davies and Teasdale, is largely explained by the use of industry specific information in our calculation of the costs of non-injury accidents.

208 Compared to 1990, there is a large decrease in workdays lost due to injury:

(a) The number of work-related injuries is two thirds the level estimated in 1990: 1.57 million injuries in 1990 compared with 1.03 million in 1995/96, a 34% drop. The number of injuries with at least one day's absence decreased from 879 000 to 488 000 (excludes the never return, still off work and unknown), a drop of 44%.
(b) The number of injuries leading to absences of part of a day has decreased by about 80%. This is possibly due to the nature of the LFS injury questions, whose higher level of detail in 1990 may have helped interviewees to remember minor injuries.
(c) The average number of workdays lost (excluding weekends, but not accounting for part-timers, for ease of comparison) per injury has also fallen from 19 to 13 in 1995/96 where at least one day was lost.
(d) There are less days off due to injuries implying absences of more than three months. Excluding weekends and not accounting for part-timers, there is a 77% decrease in the longest spells of absence (2 million in 1995/96, rather than 8.7 million workdays off), so that serious injuries seem to be dropping.
(e) We now adjust the number of days lost to account for part-time workers.

209 There may also be a possibility that people return to work sooner, compared to 1990, but this would need to be examined in more detail. The different designs of the two surveys possibly also contribute to the decrease in workdays lost.

210 All this leads to 65% less days off work due to injuries as reported in our study, compared to figures in Davies and Teasdale, and explains the significant reduction (based on the mid-points of the estimated ranges, 35%; 19% when including the NPV of future costs in our estimates for ease of comparison) in total costs to society due to workplace injuries.

211 There is however, an opposite picture on the ill-health side, even though differences in the design of the two 1990 and 1995 surveys mean that only the broadest comparisons can be made. The findings on prevalence estimates are similar, with a 8% decrease compared to the estimates used by Davies and Teasdale. The most striking apparent change is the estimate of workdays lost, which is over 50% higher than the estimate in Davies and Teasdale. This increase

is mainly due to design changes in the surveys. For example, in the 1990 survey any days lost by people who changed jobs because of their illness were not included and people suffering from more than one work-related illness were asked only about the most serious (see SWI95 for more detail on this). The increase has an obvious impact on the costs to society due to work-related illness estimated here. Based on the mid-points of the estimated ranges, these are 43% higher (122% if including the NPV of future costs for ease of comparison) than in 1990.

212 There are also various differences of method between Davies and Teasdale (1994) and this updating. For this updating, the following apply:

(a) no adjustment is made for the effect of the level of unemployment. Davies and Teasdale assumed instead that in the absence of injury/ill health only 50% of the potential extra labour supply would have been absorbed by the economy in additional employment and output. This had the effect of reducing the loss of output due to people leaving the labour force;
(b) 2% discount rate for health and safety benefits rather than 4%;
(c) uprating future loss of earnings by 1.8% per year;
(d) future cost impacts (expressed in present value terms) are shown separately from costs incurred in 1995/96, whereas Davies and Teasdale always combined the two. Unless specified, only the in-year costs are considered when expressing total costs in terms of GDP in 1995/96;
(e) workdays lost account for part-time workers;
(f) use of the information in the New Earnings Survey to adopt earnings data which reflect the characteristics of the ill and injured people in the LFS/SWI95 samples, rather than use of average wage for manual workers;
(g) the number of non-injury accidents has decreased compared to 1990, because the number of injuries has decreased and we use a few sector-specific injury/ non injury ratios.

213 Points (d), (e) and (g) from the previous paragraph tend to reduce costs, compared to the methods of estimation in Davies and Teasdale (1994). Points (a), (b), (c) and (f) have the opposite effect (even though it will be recalled that a 2% discount rate gives a lower VPFyear. This, however, does not have a very large impact on total costs because we have made more limited use of the relative utility loss index approach to the valuation of human costs, compared to Davies and Teasdale, 1994).

214 The present study also differs from the previous one as a result of the following:

(a) changes in taxes and social security benefits, and use of information from the Family Resources Survey 1995/96 to estimate loss of earnings;
(b) when calculating the human costs of injuries, we have assumed that none of the 'never return' will go back to work, while Davies and Teasdale assumed that some may eventually return;
(c) method of estimating recruitment costs (we have used information from the IPD);
(d) method of estimating costs due to accidental events in the oil and gas production sector (we have used information from Department of Trade and Industry);
(e) more detailed recent information on medical treatment costs; and
(f) incorporation of costs to HSE and local authorities.

215 Costs are differently distributed among individuals, employers and the rest of society, compared to the 1990 estimates (which included the present value of future costs). Based on the mid-points of the estimated ranges, more of the cost is borne by individuals (47% of total 1995/96 costs compared to 34% in Davies and Teasdale) and less by employers, who face 45% of total 1995/96 costs compared to 51%. Less of the cost is borne by the rest of society (8% of total 1995/96 costs compared to 15%).

216 However, Davies and Teasdale included the net present value of future costs in their total costs. By doing the same, we note that the rest of society bears a much higher proportion of the costs (27% of total costs) than in 1990. This is partly explained by a greater output loss for people having to leave the labour force, since, due to the different economic background in 1995/96, compared to 1990, an adjustment for unemployment is no longer appropriate. A higher proportion of the costs is also borne by the individuals, who bear 43% of the costs. Employers, instead, bear 30% of the costs (ie almost half as much as in Davies and Teasdale). This is due to the decrease in the number of estimated injuries and consequently of non-injury accidents, compared to 1990, since, as we noted in Chapter 5, employers are the sole bearers of the cost of non-injury accidents.

Chapter 8
International comparisons[72]

217 This chapter provides a brief comparison between our estimates and those reported in other countries who have completed studies into the costs of workplace injury and non-injury accidents and of work-related ill health. All of the studies find that the economic costs can be substantial. Differences in approach are considered in addition to the results.

Cost estimates

218 Beatson et al (1997) reviewed a number of estimates of the costs of workplace injury and non-injury accidents and of work-related ill health, covering Denmark, Finland, Norway, Sweden,[73] the Netherlands and Australia. Key findings from each of these studies, together with results for Britain, are summarised in Table 41. They suggest that in most countries, costs are in a range between 2% and 5% of GNP. Costs relative to output are estimated to be lowest in Britain.

219 Norway and Sweden have the highest estimates. This is mainly due to the inclusion of Norwegian and Swedish data of any sickness suspected of being connected with work.[74] Factors that would cause a difference in the estimates include: definitions and coverage; institutional factors (eg different compensation systems); health care costs; and different estimates of the proportion of illness that is work related.

Table 41 International comparison of estimates of the economic and social costs of workplace injuries and non-injury accidents and work-related ill health

Country/study	*Base year*	*Cost as percentage of Gross National Product/Income (GNP/I) (base year)*[a]
Great Britain[b]	1995/96	1.2 - 1.4
Denmark[75](c)	1990	2.5
Finland	1992	3.6
Norway[c]	1990	10.1
Sweden[c]	1990	5.1
Denmark[76]	1992	2.7
Norway[77]	1990	5.6 - 6.2
Australia[d]	1992/93	3.9
Netherlands[e]	1995	2.6

(a) Note that the estimates of costs expressed as percentages of national output for Norway (Lund et al 1992), Australia and the Netherlands, are approximate, being based on Eurostat figures for the exchange rates and/or IMF data on Gross National Income (GNI).
(b) Excluding NPV of future costs and costs arising from accidental events which did not cause injury, and including human costs.
(c) Estimates prepared for the Nordic Council of Ministers, using a similar approach.[78]
(d) The figure here is based on an estimated cost of A$15 billion. The report indicated, however, that costs could be as high as A$37 billion.
(e) The figure here is a best estimate of Fl 16.8 billion. The range of cost estimates is Fl 12.9-22.8 billion.

220 A report reviewing European research into the economic costs of road accidents (COST 313)[79] developed a thorough and comprehensive classification of all the relevant economic and social costs involved in road traffic accidents. This comprehensive framework is equally applicable to work-related ill health and injuries.

221 Table 42 presents an assessment of how far the coverage in each national study matches the COST 313 framework.

222 Table 42 reveals numerous differences in the broad cost categories included in the national studies. The Australian study, for example, is the only one to explicitly cost calls on the emergency services. Both British and Australian studies, in contrast to the Nordic countries, attempt to place monetary values on the pain and suffering to victims. Only the 1992 Danish and the British studies attempt to provide an illustrative estimate of the lost domestic output.

223 These differences in approach are magnified when differences in the way costs are measured are taken into account. For example, our study has estimated the total number of cases of work-related ill health from the results of a population survey, which relies on people's own assessment of their medical condition and whether it was caused by work. In contrast, the Nordic country studies take existing estimates of the incidence of ill health as a whole and then estimate the proportion of ill health that is work related using the scientific information available.

224 The Dutch study measures the effects of injury and ill health on lost output through their impact on social security payments. This will be an imperfect measure, to the extent that disability benefits do not fully capture productive potential. A more common approach has been to measure lost output through earnings loss.

225 A German study (not reported here) used yet another approach, based on macroeconomic model results,[80] and does not include work-related ill health. A US study by the National Safety Council (Hoskin, 1996) also estimates only workplace injury costs (over US$112 billion in 1995, ie 1.5% of the GNI).

226 While all of the studies attempt to quantify many of the main economic impacts, such as production losses and healthcare costs, the treatment of non-marketed effects, such as the impact of pain and suffering on victims' lives or the effect on their ability to carry out unpaid work in the home, is less comprehensive.

227 Of the studies reviewed here only the British one considers the impact of non-injury accidents.

228 It is worth noting that none of the cost estimates reported in this paper cover all the relevant costs. To that extent, all are likely to tend towards underestimation.

229 In 1998/99, the European Agency for Safety and Health at Work[81] asked Member States for estimates of the costs of occupational health and safety to their economy. These estimates are shown in Table 43, together with our estimates for Britain. Again, the methods of estimation vary too greatly to permit a strict comparison between Member States. Furthermore, the information provided to the Agency did not always give sufficient insight into the way the calculations were carried out, what data were used, and which cost factors were included or excluded. For example, some countries are likely to include work-related road traffic accidents (RTAs) whereas Great Britain does not; this could be one reason why our cost estimates are lower than elsewhere.

Table 42 Costs elements included in national studies of the costs of workplace injury and non-injury accidents and work-related ill health

Cost element	*GB (1995/96)*	*Nordic countries[a] (1990)*	*Australia (1992/93)*	*Denmark (1992)*	*Finland (1992)*	*Netherlands (1995)*
Medical costs:						
First aid and ambulance	X	?	✓	?	?	?
Accident and emergency	X	?	✓	?	?	?
In-patient treatment	✓	✓	✓	✓	✓	✓
Outpatient treatment	✓	✓	✓	✓	✓	✓
Non-hospital treatment	✓	✓	✓	✓	✓	✓
Aids and appliances	X	?	?	?	?	?
Non-medical rehabilitation:						
House conversions for the disabled	X	X	?	X	X	X
Occupational rehabilitation	X	X	X	X	X	X

Table 42 continued

Cost element	*GB (1995/96)*	*Nordic countries[a] (1990)*	*Australia (1992/93)*	*Denmark (1992)*	*Finland (1992)*	*Netherlands (1995)*
Loss productive capacity (gross or net):						
Lost output of employed persons	✓	✓	?	✓	✓	✓
Lost non-market production (ie domestic, voluntary work)	✓ illustrative (not included in total costs)	X	?	✓ illustrative	X	X
Future or potential loss of production	✓	?	X	?	?	✓
Other economic costs:						
- time spent visiting the sick	X	X	✓	X	X	X
- lost production of other household members	X	X	X	X	X	X
Human costs:						
Loss of life expectancy of deceased victim	✓	✓	?	?	?	X
Physical and mental suffering of their victim	✓	X	✓	X	X	X
Mental suffering of friends and relatives	X	X	✓	X	X	X
Damage to property/equipment	✓	X	?	X	X	✓
Administration costs	✓	X	?	X	X	✓
Police costs	X	X	?	X	X	X
Fire service costs	X	X	?	X	X	X
Health insurance administration costs	✓	X	?	X	X	✓
Non-health insurance administration costs	✓	X	?	X	X	✓
Legal costs	✓	X	?	X	X	✓

(a) The three country studies for the Nordic Council of Ministers were based on the same methodology.
Key: ✓ = covered by the study; X = not covered by the study; ? = insufficient information.

Sources: Classification from COST 313; entries in columns are judgements based on the information available from country studies. For some of the studies, this information is limited.

230 The figures are broadly in line with those shown in Table 41. A group of countries provided estimates as a percentage of their gross national product (GNP), which range from 2.6% to 3.8% (with a wide variety of cost factors included). Estimates as a proportion of GNP were made for other Member States for the purposes of the European Agency's project. They are based on the total reported cost data and range from 0.4% to 4%. According to the report, however, the costs are likely to be higher because of under-reporting of illnesses and injuries, and because not all sectors of industry are always covered.

Table 43 Estimates of costs of occupational injuries and non-injury accidents and work-related ill health in European countries

Country	*Base year*	*Cost as a percentage of GNP/I*	*Coverage*[a]
Austria	1995	1.4	accidents
Belgium	1995	2.3	accidents and ill health
Denmark	1992	2.7	accidents and ill health
Finland	1994	3.8	injury and ill health
France[b]	1995	0.6	insurance costs of accidents and ill health
Germany[b]	1995	2.4	?
Ireland	1996	0.4	cost of claims for accidents and ill health
Italy	1996	3.2	costs to public purse of accidents and ill health
Luxembourg	1995	1.3 - 2.5	accidents and ill health
Netherlands	1995	2.6	costs of health risks
Portugal	1995	0.4	costs of accidents, and costs of social security compensation for ill health
Spain	1995	3.0	accidents and ill health
Sweden	1995	4.0	costs of reported injuries and of allergic diseases of the upper respiratory passages
Great Britain	1995/96	The figure for GB is estimated between 0.6% and 1.2% if costs for pain and suffering are left out[c]	ill health, injury and non-injury accidents

(a) The European Agency report does not specify whether 1) occupational 'accidents' include both injuries and non-injury accidents. It is likely that only workplace injuries are included, unless otherwise specified, 2) work-related traffic accidents (RTAs) are included. Great Britain does not include work-related RTAs.
(b) Both France and Germany include work-related RTAs as reportable work accidents, so it is likely that they are also included to calculate the cost in column 3.
(c) Percentages refer to costs incurred in 1995/96 only.
Key: ? = insufficient information

Fatal and non-fatal injury rates

231 Aside from the differences in methods of calculating the costs, our estimate for Britain is likely to be lower due to lower rates of workplace injuries in Great Britain than in other countries.

232 Table 44 presents comparative rates of fatal and of over-3-day injury for all industries combined in each Member State as derived by Eurostat, and also for the USA from an HSE study.[82] The statistics provide an indication of relative British safety performance, despite the different definitions involved. No such analysis has been undertaken on ill health.

Table 44 Rates[a] of fatal and of over-3-day injury per 100 000 workers or employees in Europe and the USA[b], 1994

Country	*Rate of fatal injury*	*Rate of over-3-day injury*	*Employed people covered*
Great Britain	1.7	1900	workers
Sweden	2.1	1100	workers
Netherlands[c],[d]	2.6	4300	employees
Denmark	2.8	2700	workers
USA[d]	3.2	2800	workers
Austria[d]	3.4	5300	workers
Finland	3.6	3900	employees
Germany	3.7	5600	workers
Ireland	3.9	900	workers
EU average	**3.9**	**4500**	
France	4.3	5500	employees
Greece	4.3	3700	employees
Italy	5.3	4600	workers
Belgium	6.0	4400	employees
Spain	7.0	6200	employees
Luxembourg[e]	-	7300	workers
Portugal	9.7	7400	employees

(a) *All rates of injury are based on a combination of 8 sectors of industry: agriculture (including hunting and forestry), manufacturing, construction, retail and wholesale distribution, hotels and restaurants, transport, and financial services and real estate activities.*

(b) *Source is Eurostat except for the USA and rate of fatal injury of the Netherlands. Eurostat excluded commuting injuries. It excluded road traffic accidents from rates of fatal injury but included them in rates of non-fatal injury where the effect of their inclusion is relatively small.*

(c) *The rate of fatal injury in the Netherlands is based on figures from the Ministry of Labour. It includes some road traffic accidents and is adjusted to allow for under-reporting of fatal injuries in that country.*

(d) *The rates of non-fatal injury in the USA, Austria and the Netherlands include injuries which result in 1 to 3 days absence from work. They are rates of over-1-day injury. The equivalent British rate is 2550 based on the Labour Force Survey.*

(e) *Eurostat did not publish a rate of fatal injury in Luxembourg which is based on a relatively small number of fatal injuries.*

233 The table shows that Great Britain has the lowest rate of workplace fatal injury, for all industries combined, among Member States and the USA, and has one of the lowest rates of non-fatal injury, with the exception of Sweden and Ireland.

234 HSE (1998b) also shows that British rates of fatal injury are lower than the EU average for agriculture, manufacturing, construction, and for the service sector as a whole (excluding public administration) (table not reported here). Compared to individual Member States, British rates of fatal injury are lower than those of Germany, France, Italy and Spain in manufacturing, public utilities, construction, transport and in the service sector as a whole (excluding public administration). In agriculture, British rates are higher than in Germany, and are similar to those in Spain.

Conclusions

235 Differences in approach make cost estimates of this kind very difficult to compare.

236 However, our study for Britain does have a relatively wide coverage of costs, compared to estimates from other countries, yet has produced one of the lowest estimates in terms of percentage of national output. Therefore, if an approach more similar to other countries in terms of costs included were taken, the British estimate would be even lower. For example, if in Table 41 we excluded the human costs, the percentage would change to 0.4% - 0.6% of GNI.

237 The comparison between costs is broadly in line with data on fatal and non-fatal injury rates across countries.

Appendix 1
The labour force survey[83]

1 The estimates in this study are based on the results of the 1995/96 Labour Force Survey (LFS). The LFS is a survey of around 60 000 private households, covering about 160 000 individuals, throughout the UK. In Great Britain, interviews are carried out by the Office for National Statistics (ONS). Its purpose is to provide information on the labour market which can then be used to develop, manage, evaluate and report on labour market policies.

2 The interviewers ask a range of questions on topics including: household characteristics, employment history and education and training. When a household member is not available for interview, a proxy response from another household member can be taken. On average, about one third of all interviews are proxy interviews.

3 The survey was conducted once every year between 1984 and 1992, in spring. Since 1992, the survey has been conducted on a quarterly basis in Great Britain. Each quarter's sample is made up of five 'waves', each of approximately 12 000 private households. Each wave is interviewed in five successive quarters, such that in any one quarter, one wave is receiving their first interview, one wave their second and so on, with one wave receiving their final interview. A systematic random sample is used and is therefore representative of the whole of Great Britain. LFS is weighted according to population estimates taken from some other source such as the Census. Each person in the survey is given a weight which can be thought of as the number of people that case represents. This 'grossing factor' is related to that person's age, sex, region and residence. As with all sample surveys, all estimates based on the LFS are subject to sampling error.

4 There are a number of differences between the quarterly survey and pre-1992 (annual) Labour Force Surveys:

(a) slightly lower response rates from 1992 onwards;
(b) improved precision through the introduction of an unclustered sample of addresses for the whole of Great Britain; and
(c) those in NHS accommodation and students in halls of residence were included from 1992 onwards.

5 Historical LFS results are reported in Labour Market Trends (formerly Employment Gazette).

Workplace injury statistics

6 An annex to the 1990 LFS carried a series of questions on workplace injury and work-related ill health, the results of which formed the basis of Davies and Teasdale (1994). The trailer provided fairly detailed information of the type of injury suffered in the workplace and the circumstances in which it incurred.

7 Since 1993/94, HSE has placed four questions on workplace injuries on the winter quarters of the LFS. The LFS provides estimates of the number of workers who have suffered injuries at or in connection with their work in the 12 months previous to the LFS interview, and identifies if the injuries led to four or more days absence from work. Since 1994/95, every three years a question is also asked

on the number of days lost due to injuries, ie the number between the day of the incident and the day of return to work.

8 The inclusion of questions in the LFS takes advantage of its existing arrangements for sampling and interviewing a large nationally representative household sample. The main survey also provides the basic demographic, industrial and occupational information on the national population, providing consistent denominator data for the calculation of rates.

9 As explained in Chapter 2, the injury estimates used in this report are from the 1995/96 LFS. Estimates of the number of days lost in 1995/96 are derived by applying the profile of duration in 1994/95 to the numbers of injuries in 1995/96. In order to minimise the effect of sample error on rates of injury, LFS rates from 1993/94 onwards are published (in *Health and Safety Statistics* and on the Internet) as three-year moving averages, ie combining three surveys - 1994/95, 1995/96 and 1996/97 - to produce estimated rates of injury centred on 1995/96. *The injury rates published in this report are based on the year 1995/96 only*.

Work-related illness statistics

10 Information about the extent of work-related illness relies on an HSE survey, Self-reported Work-related Illness in 1995 (SWI95), which used samples of households from the LFS.

11 In the SWI95, about 40 000 subjects from the fifth wave of the LFS were asked:

> 'In the last 12 months have you suffered from any illness, disability or other physical problem that was caused or made worse by your work? Please include any work you have done in the past.'

12 About 70% of the respondents who answered 'Yes' to this question agreed to a further interview to record details of their work-related illness such as: the nature of the illness, the job which caused it, how the job had led to the illness, the number of work days lost. The estimates in SWI95 are based on responses obtained at 1551 detailed interviews with respondents who believed they had a work-related illness.

13 Compared with the survey carried out in 1990, the 1995 study included two further elements:

(a) with the respondent's consent, the doctor who treated the illness was contacted;
(b) a control population, to help identify features of the job which may be associated with a work-related illness, and determine background levels of certain health problems.

14 All individual responses were reviewed and excluded if the link between illness and work was implausible. Also excluded were illnesses caused by injuries which occurred in the 12 months before the interview and illnesses caused by injuries more than 12 months before, other than manual handling injuries[84] (the interested reader can see section 3.2.1. of SWI95 for a full description).[85] A total of 522 respondents were excluded in this review. The relatively small size of the SWI95 means that the estimates based on it are imprecise, particularly for the smaller categories of illness or for individual occupations.

15 Changes in the Labour Force Survey compelled HSE to make changes in the design of SWI95, and comparisons with the results of the 1990 can only be made on a very broad level. Using the most comparable possible basis, the total

estimates for all kinds of self-reported work-related conditions were very similar in 1995 to what they were in 1990. Further details on the comparison are published in *Health and Safety Statistics 1996/97*.

Technical note

16 It should be noted that, while the injuries figure is a 'flow', the illness total includes the 'stock', changing as some people become ill while others recover. It therefore partly reflects the effects of the working environment in the past, rather than now. The difference is made clear by the inclusion of people who have retired in the SWI illness total.

17 The SWI95 also includes individuals with problems caused by a manual handling injury, for instance some of those with musculoskeletal disorders: these include the disease category 'internal' which stands for a musculoskeletal condition which affects the internal part of the body; the majority of these cases are hernias but there are also a few cases of muscle strains. In Britain there are some such people who are still working, and we include any costs associated with their continued suffering in our estimates of the costs of illness. On the other hand, the estimates of the costs of injuries include mainly short-term costs, except for people forced to give up work within the year after the injury: total days lost cannot be recorded by the LFS for those 'still off work' due to an injury.

18 There is only a remote chance of a case being double-counted in both the injury and ill-health figures, since the SWI95 has excluded all injuries except for those due to manual handling or cases of post-traumatic stress. For part of the interviewing period, the LFS - which included the screening questions - also included questions on work-related accidents (recorded under injury), and in this period the following qualifier was included: ' ... *apart from the accident you have just told me about*...'.

Appendix 2 Sick pay arrangements

1 Davies and Teasdale (1994) made assumptions on the form of income received by people when absent from work. Assumptions were based mainly on information from the 1990 LFS using data averaged over two years and rounded to the nearest 5%. Since more recent information is not available, we adopt Davies and Teasdale's assumptions, built into Table 45, except for the percentages of those receiving Incapacity Benefit: these have been provided by the Statistical Division of the Department of Social Security.

Table 45 Percentage breakdown of sources of income for absent workers, by duration of absence

Time away from work	*Full pay*	*Part pay*	*SSP only*	*Incapacity Benefit STLR[(a)]*	*Incapacity Benefit STHR[(a)]*	*Incapacity Benefit LTR[(a)]*	*None*
1 - 3 days	65	-	-	-	-	-	35
4 - 7 days	45	15	20	-	-	-	20
1 - 2 weeks	45	15	20	-	-	-	20
2 - 3 weeks	45	15	20	3.99	0.89	0.13	15
3 - 4 weeks	45	15	20	3.99	0.89	0.13	15
4 - 8 weeks	45	15	25	3.93	0.94	0.13	10
8 - 13 weeks	45	15	25	3.94	0.92	0.14	10
13 - 26 weeks	40	15	30	3.33	1.32	0.35	10
26 - 52 weeks	10	30	-	1.74	30.12	18.13	10

(a) *Information on % of workers receiving short-term lower rate (STLR), short-term higher rate (STHR), and long-term rate (LTR) of Incapacity Benefit has been provided by the Statistical Division of the Department of Social Security.*

2 The high proportion of LFS respondents reporting no source of income is surprising. While there are bound to be some with no entitlement to SSP and not entitled to benefit in their own right, this proportion is hard to explain especially for the longer duration. It may be partly explained by the presence of self-employed people, or those with short-term or unofficial jobs. In the absence of a way of checking on these matters, we use the percentages shown in Table 45, which may mean that we overestimate the loss to individuals and underestimate the cost to employers.

3 To calculate the amount of sick pay paid, it is necessary to calculate the total number of days of absence in each duration band. The total number of days lost with full pay, part pay, SSP, benefit and no income are then used in Tables 18 and 25 to calculate the total income lost when absent due to workplace injury and work-related ill health (see Davies and Teasdale, 1994, for more detail on this).

Appendix 3 Medical treatment

1 Costs to the health service have had to be estimated by assuming that a longer duration of incapacity is correlated with more treatment - as both relate to severity - and consequently with higher costs.

2 The typical cost of a GP consultation was calculated by the Department of Health (Netton and Dennett, 1997) at £10 in 1996/97 (£9.60 in 1995/96 using the pay component of the hospital and community health services - HCHS - index to deflate). Assuming that every GP visit results in a prescription that costs about £17.70 (£18 in 1996/97, deflated using the HCHS prices inflator), the total cost of a consultation is £27.30.

3 These figures are significantly different from those used in Davies and Teasdale (1994). The current estimates by the Department of Health reflect more detailed information about actual expenditure and activities of GPs. The primary reason for the change in the unit cost estimate of consultations, however, is that prescription costs are identified separately after deducting direct expenditure on prescriptions by GPs.

4 Unit costs for hospital in-patient and outpatient services were calculated from cost returns to the Department of Health by trusts for the year ending 31 March 1996. From this data it was estimated that an outpatient visit costs £52.37 and an in-patient visit costs £195.19 in 1996/97 prices. Deflating these figures to 1995/96 prices using the HCHS pay and prices index gives £50.67 and £188.84. It should be noted that these figures incorporate an overheads element to reflect the cost of capital and support services in the provision of hospital services. They are therefore indicative of average, rather than marginal costs.

5 Table 46 shows the treatment required for different durations of absence. Given the wide range of causes we have used a range. No distinction has been made between treatment of injury and illness. These assumptions may overestimate the number of visits to GPs (the SWI95 reports 1.9 million people who consulted a doctor for at least one work-related illness), but probably underestimate outpatient visits.

Table 46 Treatment required for different durations of absence [86]

Duration	*Number of GP consultations*	*Number of outpatient visits*	*Number of in-patient visits*	*Minimum cost (£)*	*Maximum cost (£)*
No absence	1	0	0	27.30	27.30
1 to 5 days	1	0-1	0	27.30	78
1 to 4 weeks	2 - 4	1 - 2	0 - 2	105	588
1 to 3 months	3 - 5	2 - 3	0 - 4	183	1 044
3 to 6 months	4 - 5	3 - 4	1 - 5	450	1 283
More than 6 months	5 - 9	5 - 7	3 - 7	956	1 922
Fatalities	0	0	1 - 2	189	378

6 For the long-term sick who have withdrawn from the workforce we assume annual costs of £114, which is roughly equivalent to two visits to a GP plus one outpatient visit and regular medication (2.5 prescriptions) each year.

Appendix 4 Issues of method

Total costs

1 We have used the most comprehensive available data to derive estimates of total costs to individuals, employers and society for Britain. This means that:

(a) for the injury and illness total costs in the tables and main text, we always refer to results obtained using the occupation breakdown; and
(b) for the non-injury accidents total costs in the tables and main text, we always refer to results obtained using the industry breakdown.

Tables by industry, region and occupation reported in Appendix 8 have then been scaled on the basis of (a) and (b), which give the best estimates for total costs.

Financial costs to individuals

Income when at work

2 Data on the average gross earnings of people at work have been taken from the New Earnings Survey (NES). In order to take into account the various characteristics of ill/injured workers (manual/non-manual, sex, region, etc), we have used the following information on average gross weekly earnings in 1995/96:[87]

(a) *occupation* - weighted average earnings of full-time male and female employees per each major occupational group (weights are the male/female ratios in the LFS sample for the injury data - 0.70:0.30, and the male/female ratio in the SWI95 sample for the illness data - 0.57:0.43).
(b) *regions* - the information used on injury and illness costs:

    (i) injury costs: we have used weighted average earnings of manual/ non-manual male/female full-time employees per each region (weights are the proportion of male/female, and manual/non-manual workers in the LFS injury sample); and
    (ii) illness costs: we have used weighted average earnings of manual/ non-manual male/female full-time employees per each region (weights are the proportion of male/female, and manual/non-manual workers in the SWI95 sample).[88]

(c) *industry* - the same method was used as for regions.

3 Even if we had more details on different wage levels for people injured/ill, it is unlikely that the picture would alter significantly.

4 Table 47, for the purpose of illustrating the calculation only, has used the NES average gross weekly earnings for an injured manufacturing industry worker in 1995/96, £328.39, or £65.68 per day.[89] Excluding overtime, bonuses, etc, the basic daily wage was £59.48.[90]

Income when absent from work

5 For many people, absence from work means a reduction in income. The extent of this loss, however, differs substantially across individuals. Many employers continue to pay their absent workers full pay, although some only pay this for a fixed period and this may still involve a loss of income to the individual through loss of overtime, bonuses, etc. Some employers pay reduced wages, others only Statutory Sick Pay (SSP). Some employers may pay nothing at all. DSS Incapacity

Benefit is available to those who are not entitled to SSP and do not receive payments from their employer (see Appendix 6 for more detail).

6 In calculating the loss of income, we have assumed the following:

(a) where absentees receive part pay we assume this to be 75% of their basic pay;
(b) for those on benefits we assume one adult dependant only and we have used April 1995 benefit levels;[91]
(c) no income is lost for absences of less than a day; and
(d) in all cases, annual income is assumed to remain above the tax allowance.[92]

7 Table 47 presents the differences in daily income of an injured manufacturing industry worker when absent from work by whether they receive the full basic wage, part pay, SSP only, Incapacity Benefit,[93] or nothing. It shows that the loss of income can range from £4.03 for those receiving the full basic wage (loss of overtime, bonus payments, etc, less the tax that would have been paid on this) to £49.28 for those receiving nothing (the gross daily pay less the tax that would have been paid on this).

8 The assumptions used could result in a slight overestimate of the loss of income because:

(a) people absent for long spells may get some tax refund;
(b) people in households on low income may be eligible for income-related benefits such as Income Support or Housing Benefit;
(c) even where a person receives nothing their partner may receive increased benefits;
(d) we had to assume that all days off reported by respondents were in a single spell but if they had a number of shorter spells, employers' sick pay might be higher; and
(e) in a small number of cases there may be some reduction of the loss where people have private insurance cover against injury or loss of earnings. However, this is really only a temporal shift of income with people spreading the loss of disposable income over time.

9 Statistical information on the proportion of employees that receive each of these types of income is scarce. Using information derived from the LFS 1990, and from the Department of Social Security to reflect the current structure of incapacity benefits, we have made assumptions about the proportion of people in each duration band who receive wages, Incapacity Benefit or Statutory Sick Pay, or none of these, and derived the number of days lost at full, part pay or on benefit (see Appendix 2).

10 By applying the estimated difference in net daily income of individuals when absent from work to the estimated number of days for which it applies we can estimate the total cost of absence to individuals. This is presented in Table 18 for the whole economy.

Valuation of human costs

11 For injuries, we use WTP and willingness to accept (WTA) estimates derived in a recent study,[95] and also the results from the standard gamble approach,[96] which is adopted by DETR to obtain values for serious and slight injuries in road accidents.[97] This approach draws on a survey which was carried out in UK in 1991 and obtained best estimates of the value of several injury states[98] relative to death.

12 We have taken the following descriptions[99] to be representative of the various degrees of severities of workplace injuries and ill health:

Table 47 Differences in daily income when absent from work, for an injured manufacturing industry worker

Form of income during absence		*Basic wage*	*Part pay*	*SSP only*	*Incapacity Benefit Short-term lower rate*	*Incapacity Benefit Short-term higher rate*	*Incapacity Benefit Long-term rate*	*Nothing*
1 Normal gross pay per day (including overtime)	£	65.68	65.68	65.68	65.68	65.68	65.68	65.68
2 Income when absent (gross pay excluding overtime)	£	59.48	44.61	10.91	14.38	16.00	18.82	-
3 Normal net pay per day	£	49.28	49.28	49.28	49.28	49.28	49.28	49.28
4 Income when absent (net pay excluding overtime)	£	45.25	33.94	10.91	14.38	16.00	18.82	-
Difference in gross income row 1-row 2	£	6.20	21.07	54.77	51.30	49.68	46.86	65.68
Difference in net income row 3-row 4 except IBSTLR	£	4.03	15.34	38.37	34.90	33.28	30.46	49.28

Note a) The short-term higher rate and long-term rate of Incapacity Benefit are treated as taxable income; b) an individual can only receive one benefit at any one time; c) the loss for people receiving nothing is less than average daily income because they will pay lower tax when they return; d) calculations in this table are based on average earnings for an injured manufacturing industry worker, 1995/96, for illustration purposes. However, results for costs in Tables 18 and 19 are based on average earnings by occupation, for the whole economy;[94] e) see Appendix 6 for more information on social security benefits.

Workplace injuries

(a) *Permanent incapacity following injury*: assumed over the long term to involve some pain which gradually reduces over time but may recur when taking part in certain activities and some permanent restrictions to leisure and some work activities. In the standard gamble approach, this state is similar to both injury states S and R (see Galasko et al, 1986), which are the central categories among the states of permanent incapacity, that go from mild to severe. Injury state group S (less severe forms of permanent incapacity) is defined as: 'in hospital 1-4 weeks in moderate to severe pain; after hospital, some pain gradually reducing, but may recur when taking part in some activities; some permanent restrictions to leisure and possibly some work activities'. For this group, a value of around £115 670 (1995/96 prices) is obtained (15.1% of VPF). The injury state group R is more severe: 'in hospital several weeks, possibly several months in moderate to severe pain; after hospital, continuing permanent pain, possibly requiring frequent medication; substantial and permanent restrictions to work and leisure activities; possibly some prominent scarring'. For this state, a value of £178 480 (1995/96 prices) is obtained (23.3% of VPF). Since we do not have information on the number of cases in each state of permanent incapacity, we have used the average value £147 100 in 1995/96 prices of these two states of incapacity.

(b) *Serious injury*: assumed to involve: between two and seven days in hospital in slight to moderate pain; some restriction to work and leisure for several months; and return to normal health after three to four months. For this injury state (W in Professor Galasko's classification) a question was directly asked in

the standard gamble research: the best estimate of the relative value of this state in relation to death was 2% (of VPF), ie £15 300 (1995/96 prices). In a more recent UK study,[100] however, respondents were asked for their WTP for the certainty of a quick and complete cure for this injury state, and their WTA compensation for the certainty of sustaining the same injury. The WTP and WTA figures were £1733 and £11 952 respectively, in 1997/98 prices (£1539 and £10 616 in 1995/96 prices, when deflating to the third quarter of 1995 by using GDP per capita at market prices). On the assumption that a respondent's underlying preferences obey minimal conditions of consistency and regularity, these WTP and WTA responses may be used to derive a broad estimate of the rate at which the person concerned is willing to trade off wealth against risk of the non-fatal injury. It can be shown that, for an expected utility maximiser, provided the marginal utility of wealth is unaffected by the non-fatal injury - which seems plausible for an injury of lesser severity such as W - then the individual's rate of trade-off of wealth against the risk of sustaining the non-fatal injury will lie between the WTP and WTA values. In Jones-Lee et al, 1993, state W and state F described in the following paragraph were considered broadly equivalent,[101] however state W involves in-patient, rather than outpatient treatment. In our calculations of the human costs, therefore, we have used the upper range (£10 600) as the value for state W, and the lower range as the value for state F.

(c) *Non-serious reportable injury (involving over three days' absence)*: assumed to involve: outpatient or GP treatment with the victim in slight to moderate pain for between two and seven days; in some discomfort for several weeks, with some restriction to work and leisure activities for several weeks; and full recovery after three to four months. Since a direct question was not asked for this state of injury (state F), which was interpreted as equivalent to state W, we use the lower end of the range shown previously (£1550, 1995/96 prices).

(d) *Minor injury*: involving up to three days' absence in the case of injury. During the 1991 WTP survey,[102] the respondents' best estimate for an injury involving minor cuts and bruises with a quick and complete recovery was £102 (£123 in 1995/96).

Work-related illness

13 There are currently very few studies which directly ask people their WTP to reduce the number of days on which they suffer particular symptoms, and most of the available studies have been undertaken in the US, rather than in the UK or the rest of Europe. In measuring health state valuations in recent years, only more-or-less direct[103] choice-based methods (such as standard gamble and time trade-off (TTO)[104]) have been employed.

We have therefore assumed the following:

(a) *permanently incapacitating illness* (same definition as above for injuries): we use the standard gamble approach, as for permanently incapacitating injuries. However, the short-term effect of an injury seems to be included in £147 100, and therefore needs to be deducted. In order to do so, we use the relative utility loss index approach,[105] and adopt a revision of the EuroQol relative utility loss scale, the EQ5D scale, which was derived from a UK representative sample and uses a scaling procedure based on TTO. EQ5D is widely regarded in the UK as the most appropriate scale to use. The main EuroQol EQ5D scale is based on states of ill health lasting ten years. In our context, it is appropriate to use the EQ5D scale for states of ill health of one year duration.[106] A value of £11 000 is obtained using an 0.395 relative utility loss score (on a VPFyear of £27 900) for a serious injury possibly leading to permanent incapacity. This is deducted to obtain a value for permanently incapacitating ill health equal to £136 100.

(b) *Other cases of ill health (over one calendar week work-related illness)*: this is described as state F (see previous paragraph), and we therefore use a monetary value of £1550 (1995/96 prices).
(c) *Minor cases of ill health*: involving up to a calendar week absence in the case of ill health. We adopt the £123 elicited for minor injuries, since the standard gamble seems inappropriate for non-serious health states and the relative utility loss scales seem to be insufficiently sensitive to detect small changes.

14 It is worth noting that there are several criticisms directed at the idea of annuitising a VPF in the relative utility loss index approach (sometimes referred to as quality-adjusted life years - QALYs). This approach was used above to derive a monetary value of pain, grief and suffering caused by permanently incapacitating illnesses. A few of the criticisms are listed here:

(a) the QALYs gained by someone in a very severely impaired health state is treated the same as a quality-adjusted life year gained by someone in only mildly impaired health;
(b) the approach does not allow for variations in people's preferences, at particular ages or for particular risks. According to Pearce (1998):[107]

    (i) the VPFyear approach implies a monotonically declining VPF with age, whereas the WTP for risk literature tends to produce inverted U shapes; and
    (ii) most importantly, the age-related VPFs derived on this approach are arbitrary: they are imposed from outside rather than being derived from any individual-based risk assessment;

(c) the value attached to factors such as the will to live, or concern about not achieving certain aspirations, cannot be expected to be simply proportional to the remaining life expectancy.[108]

15 Nevertheless, a more direct approach to assessing the value that people attach to adding QALyears to their lives, which would take account of the particular circumstances, has not yet been carried out in the UK, so that the relative utility loss methodology is still used as a measure of health impact.[109] Furthermore, notwithstanding the criticisms mentioned above, it has to be noted that some characteristics of the QALYs approach make it rather suitable to our context and data:

(a) the scoring does not take into account the differential importance attached by individuals to avoid a given loss in quality of life from different diseases; and
(b) the quality of life states are presented out of the context of the age of those affected.

16 An alternative approach[110] suggested in the literature on morbidity valuation is to use an equation directly relating willingness to pay (WTP) to a relative utility index called the quality of well-being (QWB) score. The QWB scores, though, are not based on empirical evidence, and it is preferable in the UK to use EQ5D scores instead. However, an equation relating WTP to EQ5D is currently not available, whereas an equation using QWB is derived by Maddison who undertook a meta-analysis using results from previous studies (see DoH, 1999). It should be noted, though, that those studies used differing methods and definitions of ill health. The study by DoH (1999) adopts this approach, but notes that there are many uncertainties involved with the estimates obtained. Because of this, coupled with the fact that both QWB scores and the studies from which the equation is estimated are US based, rather than EU based and so not easily transferable to the UK, this method has not been adopted here.

Appendix 5 Estimated working days lost in 1995/96

1 The following tables show days off work, average days lost per worker and per injured/ill worker due to injury/illness by industry, region and occupation.

Table 48 Annual days off work due to workplace injuries, by industry, 1995/96, LFS

Industry	*Estimated number of working days lost (000s)[a]*	*Average number of working days lost per injured worker*	*Average number of working days lost per injured worker who took time off[a]*	*Average number of working days lost per worker in the labour force[b]*
Agriculture	248	9	14	0.54
Energy & water	71	4	6	0.24
Manufacturing	1 830	7	11	0.39
Construction	647	6	8	0.38
Distribution & repair	696	5	7	0.18
Hotels & restaurants	277	5	9	0.25
Transport & communication	603	7	11	0.39
Finance & business	336	5	8	0.10
Public administration & defence	626	9	16	0.43
Education	160	3	6	0.08
Health & social work	629	5	9	0.24
Consumer/leisure	249	5	8	0.17
All industries	6 352	6	9	0.26

Note All figures are rounded.
(a) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work. Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work).
(b) Number of days lost divided by the number of employees and self-employed reported in the LFS for each individual category.

Table 49 Annual days off work due to workplace injuries, by region, 1995/96, LFS

Region	*Working days lost[a] (000s)*	*Average number of working days lost per injured worker*	*Number of working days lost per injured worker who took time off[a]*	*Number of working days lost per worker in the labour force[b]*
South East (excluding London)	1 023	5	8	0.20
East Anglia	243	6	9	0.25
London	706	6	10	0.24
South West	504	6	9	0.23
West Midlands	816	8	12	0.36
East Midlands	397	5	8	0.21
Yorkshire and Humberside	638	6	10	0.30
North West	602	6	9	0.23
Northern	427	7	13	0.34
Wales	277	5	7	0.24
Scotland	711	9	12	0.33
Great Britain	6 352	6	9	0.26

NB: All figures are rounded.
(a) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work. Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work).
(b) Number of days lost divided by the number of employees and self-employed reported in the LFS for each individual category.

Table 50 Annual days off work due to workplace injuries, by occupational group, 1995/96, LFS

Occupation	*Number of working days lost[a] (000s)*	*Average number of working days lost per injured worker*	*Average number of working days lost per injured worker who took time off[a]*	*Average number of working days lost per worker in the labour force[b]*
Craft & related	1 626	6	9	0.54
Plant & machine operatives	1 430	8	11	0.60
Other occupations (mainly unskilled)	811	7	10	0.40
Personal & protective services	905	6	9	0.34
Associate professionals & technical	325	5	8	0.14
Sales	266	5	7	0.13
Managers & administrators	466	5	10	0.12
Professional	209	4	7	0.08
Clerical & secretarial	362	6	10	0.10
All occupations	6 352	6	9	0.26

NB: All figures are rounded
(a) We have made assumptions about duration of absence where the duration is 'unknown' and people are 'still off' work. Injuries resulting in absence will include LFS recorded absence, all the 'never return', all the 'still off' work, and some of the 'unknown' (because some will have taken no days off work).
(b) Number of days lost divided by the number of employees and self-employed reported in the LFS for each individual category.

Table 51 Estimated annual days off work due to work-related illness, by industry, SWI95

Industry	*Estimated working days lost (000s)*	*Average number of working days lost per ill worker*	*Average number of working days lost per ill worker who took time off*	*Average number of working days lost per worker in the labour force*[a]
Agriculture	802	26	47	1.49
Energy & water	1 061	25	50	2.91
Manufacturing	3 529	15	35	0.69
Construction	1 223	9	23	0.62
Distribution & repair	1 880	13	23	0.43
Hotels & restaurants	613	14	41	0.45
Transport & communication	1 115	15	29	0.64
Finance & business	1 134	11	20	0.29
Public administration & defence	2 054	21	44	1.28
Education	919	7	14	0.44
Health & social work	2 776	14	27	0.95
Consumer/leisure	881	12	28	0.54
All people[b]	17 967	14	29	0.65

NB: All figures are rounded.
(a) Numerator is the number of days lost in each category. Denominators are based on the total number of people who have worked at some time in the last year. For those who reported a work-related illness the occupation/industry assigned to them is the one that caused the complaint. The remainder of the sample have been assigned to their current or most recently held job in the last year. This does not give a 'true' rate, since the job to which the illness is ascribed is not necessarily the current or most recently held job: calculation of a true rate would require knowledge of complete work histories for the whole population. However, these rates will be a close approximation to the true rates for short-term, non-persistent effects.
(b) Days lost sum to more than 17 967 thousand because individuals who took the same time off due to more than one illness caused by different jobs are counted in each industry.

Table 52 Estimated annual days off work due to work-related illness, by region, SWI95

Region	*Estimated working days lost (000s)*	*Average number of working days lost per ill worker*	*Number of working days lost per ill worker who took time off*	*Number of working days lost per worker in the labour force[a]*
South East (excluding London)	3 565	13	27	0.64
East Anglia	589	10	19	0.53
London	1 103	8	18	0.33
South West	1 414	11	25	0.59
West Midlands	1 155	10	27	0.45
East Midlands	2 177	20	37	1.05
Yorkshire and Humberside	2 087	18	39	0.85
North West	1 840	15	28	0.64
Northern	792	9	22	0.55
Wales	1 043	19	31	0.80
Scotland	2 202	25	39	0.88
Great Britain	17 967	14	29	0.65

NB: All figures are rounded.
(a) Numerator is the number of days lost in each category. Denominators are based on the total number of people who have worked at some time in the last year.

Table 53 Estimated annual days off work due to work-related illness, by occupation, SWI95

Occupation	*Estimated working days lost (000s)*	*Average number of working days lost per ill worker*	*Average number of working days lost per ill worker who took time off*	*Average number of working days lost per worker in the labour force*[a]
Craft & related	2 278	10	26	0.66
Plant & machine operatives	1 973	14	28	0.75
Other occupations (mainly unskilled)	1 689	15	27	0.69
Personal & protective services	3 008	18	37	0.99
Associate professionals & technical	1 692	15	28	0.68
Sales	836	13	22	0.37
Managers & administrators	3 344	17	38	0.75
Professional	724	6	12	0.26
Clerical & secretarial	2 446	15	29	0.59
All people[b]	17 967	14	29	0.65

Note All figures are rounded.
(a) Numerator is the number of days lost in each category. Denominators are based on the total number of people who have worked at some time in the last year. For those who reported a work-related illness the occupation/industry assigned to them is the one that caused the complaint. The remainder of the sample have been assigned to their current or most recently held job in the last year. This does not give a 'true' rate, since the job to which the illness is ascribed is not necessarily the current or most recently held job: calculation of a true rate would require knowledge of complete work histories for the whole population. However, these rates will be a close approximation to the true rates for short-term, non-persistent effects.
(b) Days lost sum to more than 17 967 thousand because individuals who took the same time off due to more than one illness caused by different jobs are counted in each occupation.

Notes on Tables 48-53

2 For the injury tables, we have scaled down the LFS full days lost figures by 6.5% to take into account part-time workers (13% of the LFS injury sample). We assume 4.675 full days work in a week. The part-time adjustment for the days lost due to work-related illness, instead, is based on the hours worked in a week by people in the SWI95 sample.

3 In the LFS, injury victims were asked for the number of days before they returned to work, and so has a maximum of 365. To get the number of working days' absence we have adjusted the injury figures by a factor of 4.675 divided by 7.

4 We have distributed injuries where the spell of absence is unknown (the 'don't know' and 'still off work'). We have done so by calculating, for each range of absence, the percentage of all injured people that took time off equal to that duration. This percentage is then applied to the number of 'don't know' and 'still off'. The 'still off' are assumed to have taken at least a part-day off. Those injuries where the victim said they would 'never return' to work are excluded from this calculation of working days off. It should be noted, however, that the number of injury estimates leading to absence, in these tables and in Chapter 2, does include the 'never return'.

5 It was noted in the text that the number of injuries resulting in absence is likely to be an underestimate. There is another factor leading to underestimating of total days lost: the questions on injuries asked for the number of days before returning to work, so the days lost do not include days off after the initial return (eg due to recurrence of pain, or for treatment).

6 The SWI95 is very comprehensive, however the illness question asked how many days the person was away from work. This may underestimate the amount of time a person is unavailable for work, since if they were sick while unemployed, they would not have any absence recorded.

7 In the SWI95, due to a routing error in the questionnaire, a total of 94 people had not been asked the days lost questions when they should have been. These individuals, along with a further 7 who did not respond to the questions were treated as 'unclassified' in the published report. In a revision of the SWI95, imputed values have been introduced: for each unclassified sample case the average days lost for the relevant disease group have been assigned, and the corresponding weight for each sample case has been distributed between no time off and a range of times taken off work (according to the distribution for each disease group excluding the unclassified cases).

Assumptions on damage and non-injury accidents, by breakdown

8 Table 54 shows the average damage costs and injury ratios used for each breakdown.

Table 54 Average costs of damage and non-injury accidents, and injury/non-injury ratios

Industry	*Average cost of damage from injuries - £*	*Average cost of damage from non-injuries - £*	*Administration costs from non-injuries - £*	*Injury/ non-injury ratios*
Construction	*0.50 (55%) and 27.50 (45%)*	*27.50*	*18.90*	*1:64*
Health & social work	*3.60 (55%) and 46.70 (45%)*	*46.70*	*1.30*	*1:18*
Finance & business	*1.20* (55%) and 27.50-237.20 (45%)*	*27.50 - 237.20*	*1.30 - 20.20*	*1:0.6*
Transport & communications	*1.20 (55%) and 44.30 (45%)*	*44.30*	1.30 - 20.20	1:20
All regions, occupations and remaining industries	1.20 (55%) and 27.50 - 237.20 (45%)	27.50 - 237.20	1.30 - 20.20	1:20

NB Figures in italic are from individual APAU/HSE case studies and Monnery, 1999. The rest are ranges and averages derived from the APAU case studies.

Appendix 6 DSS benefits

1 The majority of people forced to quit work will rely, in whole or part, on state benefits of which, in 1995/96, there were a number as follows:[111]

(a) Employees who have a disability because of an industrial injury or prescribed industrial disease may be eligible for Industrial Injuries Disablement Benefit (IIDB) whether they continue working or not. The size of award is determined by the degree of disablement, eg £28.59 per week for 30% disablement and £95.30 per week for 100% disablement in April 1995.
(b) Incapacity Benefit (IB) is available to people medically incapable of work and under state pensionable age. The rate of payment increases after 28 weeks of incapacity, from the short-term lower to the short-term higher rate, and again after 52 weeks to the long-term rate. Employees receive Statutory Sick Pay for 28 weeks before receiving IB at the short-term higher rate. People unable to get SSP are able to claim the IB short-term lower rate if they satisfy the National Insurance contribution conditions. People with a terminal illness or who are receiving the higher rate component of Disability Living Allowance get the long-term rate from week 29. Payments are higher to claimants with adult or child dependants.
(c) People who are incapable of work and do not satisfy the National Insurance contribution conditions for Incapacity Benefit may get Severe Disablement Allowance (SDA), which is, however, less generous than IB, and is also only available to those under state pensionable age. The amount a claimant is entitled to depends on the age at which they became disabled and the number of dependants (adult or children).
(d) Disability Living Allowance is payable to people who have a disability and need help with personal care, getting around or both. It consists of care and mobility components, and it replaced and extended Attendance Allowance and Mobility Allowance. Those who qualify receive between £12.40 and £79.35 per week. Payment depends solely on the degree of disability.
(e) There are income-related benefits, Income Support, Unemployment Benefit, Housing Benefit and Council Tax Benefit, which the affected individual or their partner can claim or receive a higher award because of worsening finances. The size of an award reflects household circumstances and characteristics, and can vary greatly accordingly.

2 It should be noted that these benefits are available for life with the exception of IB and SDA. Also the affected individuals or their partners may be receiving other benefits such as Child Benefit, whose level of payment is not contingent on the consequences of leaving work with a disability.

3 With Widow's Benefits, the DSS provides a £1000 one-off tax-free payment for widowhood and also offers a pension that is dependent on the widow's age and the number of children. Death from an industrial injury or disease automatically provides entitlement. Pregnant women are entitled to a pension. For a widow aged below 45 with no children, there is no pension. Widows who were previously not working have to look for employment, and are therefore entitled to Income Support. Widows may fall onto income-related benefits because of the loss of their partner's income. It should be noted that a woman loses entitlement if she remarries or cohabits. Additionally, once a woman reaches state pensionable age, there is a better-off calculation as to whether she receives Widow's Benefits or retirement pension.

Appendix 7 Industry and occupation classification

Industry

The categories used in the text refer to the following 1992 Standard Industrial Classification codes:

Agriculture	SIC A and B (agriculture, hunting, forestry and fishing)
Energy and water	SIC C (mining and quarrying) and E (electricity, gas and water supply)
Manufacturing	SIC D
Construction	SIC F
Distribution and repair	SIC G (wholesale and retail trade: repair of motor vehicles, motorcycles and personal and household goods)
Hotels and restaurants	SIC H
Transport and communications	SIC I (transport, storage and communications)
Finance and business	SIC J (financial intermediation) and K (real estate, renting and business activities)
Public administration and defence	SIC L (public administration and defence, and compulsory social security)
Education	SIC M
Health and social work	SIC N
Consumer and leisure	SIC O (other community, social and personal service activities)

Occupation

The categories used in the text refer to the following Standard Occupational Classification codes:

Managers	SOC 1 (managers and administrators)
Professionals	SOC 2 (natural scientists, engineers and technologists, health, teaching, legal, business and financial professionals, architects, surveyors, librarians, social workers, clergy, other social scientists, etc)

Associate professionals	SOC 3 (scientific technicians, draughtspersons, quantity and other surveyors, computer analysts/ programmers, health associate professionals, ship and aircraft officers, legal, business, financial and social welfare associate professionals, literary, artistic and sports professionals, etc)
Clerical	SOC 4 (clerical and secretarial occupations)
Craft and related	SOC 5 (skilled construction trades, skilled engineering trades, metal forming, vehicle, textile, printing and woodworking trades, and other skilled trades)
Personal and protective	SOC 6 (security and protective service occupations, services catering, travel, health and childcare occupations, domestic staff, dry cleaners, etc)
Sales	SOC 7 (buyers, brokers and sales representatives, sales assistants, market and street traders, etc)
Plant and machine	SOC 8 (industrial plant and machine operators, assemblers, drivers and mobile machine operators)
Other occupations	SOC 9 (farm, fishing and forestry workers, labourers in mining and manufacturing, construction workers, goods porters, postal workers, hospital and hotel porters, cleaners, etc)

Appendix 8 Costs by industry, region and occupation

Total costs by industry, region and occupation

1 The following tables show total costs by industry, region and occupation. Because of small samples in some of the individual categories, both in the LFS and SWI95, the disaggregated cost estimates are less reliable than the totals, and should be treated with caution. The category 'Other (offshore)' in the regional breakdown is not shown because total costs are very small. However, these are included in the total costs for Britain shown in the text. The totals may not equal the sum of columns/rows due to rounding.on of British Insurers (ABI), 1998. 'Analysis of 1997 UK liability market' Statistical Bulletin December 1998 ISSN 1362 0517

3 Association of British Insurers (ABI), 1999. 'General business statistics: claims results quarter 1 1999' Statistical Bulletin May 1999 ISSN 1357 0692

4 Baum and Niehus, 1993. Volkswirtschaftliche Ressourcenverluste durch Arbeits- unWegunfälle Fb 675 Bundesanstalt für Arbeitsschutz, Dortmund

5 Beattie J et al, 1998. 'On the contingent valuation of safety and the safety of contingent valuation: Part 1 - caveat investigator' Journal of Risk and Uncertainty 17

Table 55 Total costs to individuals of workplace injury and work-related illness by industry, region and occupation

Industry		*Accidents (£m)*		*Illness (£m)*		*Totals (£m)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*
Agriculture	Financial	4	2	13	0	17	2
	Subjective	64	-	18	-	82	-
	Total	68	2	31	0	99	2
Manufacturing	Financial	41	77	88	264	128	340
	Subjective	422	-	802	-	1 225	-
	Total	463	77	890	264	1 353	340
Distribution & repair	Financial	11	1	31	0	42	1
	Subjective	120	-	98	-	218	-
	Total	131	1	129	0	260	1
Construction	Financial	16	5	35	89	51	94
	Subjective	150	-	294	-	444	-
	Total	165	5	329	89	495	94
Consumer/leisure	Financial	5	22	14	0	19	22
	Subjective	102	-	35	-	138	-
	Total	107	22	49	0	157	22
Hotels & restaurants	Financial	4	0	12	44	15	44
	Subjective	40	-	211	-	250	-
	Total	43	0	222	44	265	44
Transport & communications	Financial	13	1	30	89	43	90
	Subjective	95	-	267	-	362	-
	Total	108	1	297	89	405	90
Finance & business	Financial	7	0	25	0	32	0
	Subjective	55	-	54	-	109	-
	Total	62	0	79	0	141	0
Public admin & defence	Financial	13	26	44	87	56	113
	Subjective	140	-	307	-	447	-
	Total	153	26	351	87	503	113
Education	Financial	4	19	28	188	32	208
	Subjective	81	-	581	-	661	-
	Total	84	19	609	188	693	208
Health & social work	Financial	12	36	74	398	87	435
	Subjective	193	-	1 305	-	1 498	-
	Total	205	36	1 379	398	1 585	435
Energy & water supply	Financial	2	2	33	0	35	2
	Subjective	27	-	29	-	56	-
	Total	29	2	62	0	91	2

Table 55 continued

Region		*Accidents (£m)*		*Illness (£m)*		*Totals (£m)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*
South East	Financial	24	56	98	281	122	338
	Subjective	297	-	891	-	1 188	-
	Total	321	56	989	281	1 310	338
East Anglia	Financial	4	0	11	0	15	0
	Subjective	41	-	33	-	73	-
	Total	45	0	43	0	88	0
South West	Financial	10	27	29	52	39	79
	Subjective	166	-	239	-	405	-
	Total	176	27	268	52	444	79
West Midlands	Financial	14	1	33	163	47	164
	Subjective	120	-	600	-	720	-
	Total	134	1	633	163	767	164
East Midlands	Financial	7	1	39	0	46	1
	Subjective	79	-	75	-	153	-
	Total	86	1	114	0	199	1
Yorkshire and Humberside	Financial	12	15	38	0	50	15
	Subjective	152	-	66	-	218	-
	Total	164	15	104	0	268	15
North West	Financial	10	1	44	155	55	156
	Subjective	105	-	589	-	694	-
	Total	115	1	633	155	749	156
North	Financial	8	1	18	61	26	62
	Subjective	59	-	252	-	312	-
	Total	67	1	270	61	338	62
Scotland	Financial	12	2	41	0	54	2
	Subjective	118	-	68	-	186	-
	Total	130	2	109	0	240	2
Wales	Financial	8	22	22	62	30	85
	Subjective	99	-	256	-	355	-
	Total	107	22	278	62	385	85
London	Financial	20	66	53	384	73	449
	Subjective	248	-	934	-	1 182	-
	Total	268	66	987	384	1 255	449

Table 55 continued

Occupation		*Accidents (£m)*		*Illness (£m)*		*Totals (£m)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*
Craft & related	Financial	32	25	50	169	82	195
	Subjective	342	-	655	-	997	-
	Total	374	25	705	169	1 079	195
Plant & machine operatives	Financial	27	24	43	164	70	188
	Subjective	317	-	666	-	983	-
	Total	344	24	709	164	1 053	188
Other occupations	Financial	12	1	29	90	41	91
	Subjective	132	-	511	-	643	-
	Total	144	1	540	90	684	91
Personal & protective services	Financial	16	16	66	294	82	310
	Subjective	200	-	1 097	-	1 297	-
	Total	216	16	1 163	294	1 379	310
Associate professionals & technical	Financial	12	63	57	286	69	350
	Subjective	162	-	573	-	735	-
	Total	173	63	630	286	803	350
Sales	Financial	5	14	13	0	18	14
	Subjective	84	-	46	-	130	-
	Total	89	14	59	0	148	14
Managers & administrators	Financial	13	2	102	0	115	2
	Subjective	78	-	86	-	163	-
	Total	91	2	188	0	278	2
Professionals	Financial	8	36	29	155	37	191
	Subjective	90	-	266	-	357	-
	Total	98	36	296	155	394	191
Clerical & secretarial	Financial	6	10	38	0	44	10
	Subjective	84	-	100	-	184	-
	Total	90	10	138	0	228	10

Table 56 Total cost to employers of workplace injury and non-injury accidents and work-related illness by industry, region and occupation

Industry		*Damage (£m)*	*Production costs (£m)*	*Administration and recruitment (£m)*		*Insurance (£m)*	*Total (£m)*	
				1995/96 costs	*NPV of future costs[a]*		*1995/96 costs*	*NPV of future costs[a]*
Agriculture	Injury	0-1	7	1	0	24	33 - 34	0
	Illness	-	22	8 - 20	-4 - -15	3	33 - 45	-4 - -15
	Non-injury	15 - 125	-	1 - 11	-	8	23 - 144	-
	Total	15 - 127	30	9 - 32	-4 - -15	35	89 - 223	-4 - -15
Manufacturing	Injury	1 - 15	75	7 - 13	-2 - -9	198	284 - 304	-2 - -9
	Illness	-	144	63 - 206	-42 - -169	61	268 - 411	-42 - -169
	Non-injury	141 - 1 217	-	6 - 104	-	79	226 - 1 399	-
	Total	143 - 1 231	219	76 - 323	-44 - -178	337	778 - 2 114	-44 - -178
Distribution & repair	Injury	1 - 7	21	2 - 3	0	31	56 - 62	0
	Illness	-	59	19 - 54	-10 - -42	6	85 - 121	-10 - -42
	Non-injury	77 - 661	-	4 - 56	-	43	123 - 760	-
	Total	77 - 668	81	25 - 113	-11 - -42	79	264 - 942	-11 - -42
Construction	Injury	1	26	2 - 3	0	22	51 - 52	0
	Illness	-	50	25 - 86	-18 - -72	20	96 - 156	-18 - -72
	Non-injury	196	-	134	-	109	439	-
	Total	197	75	163 - 224	-18 - -72	151	586 - 648	-18 - -72
Consumer/ leisure	Injury	0 - 2	9	1-3	-1 - -3	46	57 - 62	-1 - -3
	Illness	-	31	19 - 63	-13 - -52	3	53 - 97	-13 - -52
	Non-injury	27 - 230	-	1 - 20	-	15	43 - 265	-
	Total	27 - 233	39	21 - 86	-14 - -56	65	152 - 423	-14 - -56
Hotels & restaurants	Injury	0-3	7	1	0	10	19 - 20	0
	Illness	-	15	8 - 24	-5 - -19	15	37 - 53	-5 - -19
	Non-injury	28 - 242	-	1 - 21	-	16	45 - 278	-
	Total	28 - 245	22	10 - 45	-5 - -19	41	101 - 352	-5 - -19
Transport & communication	Injury	1	24	2	0	28	56	0
	Illness	-	46	23 - 77	-16 - -64	18	87 - 141	-16 - -64
	Non-injury	72	-	2 - 33	-	25	99 - 130	-
	Total	73	70	27 - 112	-16 - -64	71	242 - 328	-16 - -64
Finance & business	Injury	0 - 4	16	1	0	17	35 - 38	0
	Illness	-	55	11 - 28	-5 - -20	8	74 - 91	-5 - -20
	Non-injury	1 - 10	-	0 - 1	-	1	2 - 11	-
	Total	1 - 14	71	12 - 30	-5 - -20	26	111 - 140	-5 - -20
Public admin & defence	Injury	0 - 4	21	2 - 5	-1 - -3	59	84 - 91	-1 - -3
	Illness	-	71	34 - 112	-23 - -91	24	130 - 207	-23 - -91
	Non-injury	39 - 334	-	2 - 28	-	22	62 - 384	-
	Total	39 - 337	92	39 - 145	-24 - -95	105	276 - 681	-24 - -95
Education	Injury	0 - 2	6	1 - 3	-1 - -3	34	41 - 45	-1 - -3
	Illness	-	37	27 - 97	-21 - -83	31	96 - 166	-21 - -83
	Non-injury	26 - 222	-	1 - 19	-	14	41 - 255	-
	Total	26 - 223	43	29 - 119	-21 - -86	80	178 - 465	-21 - -86
Health & social work	Injury	1 - 2	22	3 - 6	-1 - -5	78	105 - 111	-1 - -5
	Illness	-	101	56 - 189	-39 - -157	84	240 - 373	-39 - -157
	Non-injury	99	-	3	-	32	134	-
	Total	100	122	62 - 198	-41 - -162	194	479 - 618	-41 - -162
Energy & water supply	Injury	0 - 1	4	11 - 13	0	4	23 - 25	0
	Illness	-	51	12 - 33	-6 - -25	4	67 - 88	-6 - -25
	Non-injury	182 - 260	-	15 - 22	-	5	202 - 287	-
	Total	182 - 260	55	37 - 68	-6 - -25	13	292 - 400	-6 - -25

Notes
(a) See footnote (a) in Table 1.

Table 56 continued

Region		*Damage (£m)*	*Production costs (£m)*	*Administration and recruitment (£m)*		*Insurance (£m)*	*Total (£m)*	
				1995/96 costs	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
South East	Injury	1 - 8	43	6 - 12	-2 - -7	93	144 - 156	-2 - -7
	Illness	-	155	71 - 237	-49 - -197	60	286 - 452	-49 - -197
	Non-injury	188 - 764	-	36 - 94	-	77	300 - 935	-
	Total	189 - 772	198	112 - 343	-51 - -203	230	730 - 1 543	-51 - -203
East Anglia	Injury	0 - 2	9	1	0	14	24 - 26	0
	Illness	-	22	9 - 28	-6 - -23	3	34 - 53	-6 - -23
	Non-injury	35 - 144	-	7 - 18	-	14	56 - 176	-
	Total	36 - 145	31	17 - 47	-6 - -23	32	115 - 255	-6 - -23
South West	Injury	0-3	17	3 - 7	-1 - -5	76	97 - 103	-1 - -5
	Illness	-	52	35 - 120	-25 - -101	18	104 - 189	-25 - -101
	Non-injury	76 - 308	-	14 - 38	-	31	121 - 376	-
	Total	76 - 311	69	52 - 165	-26 - -106	125	322 - 669	-26 - -106
West Midlands	Injury	1 - 5	28	4	0	59	92 - 96	0
	Illness	-	42	25 - 85	-18 - -71	37	104 - 163	-18 - -71
	Non-injury	89 - 363	-	17 - 45	-	36	143 - 444	-
	Total	90 - 368	71	45 - 133	-18 - -71	132	338 - 704	-18 - -71
East Midlands	Injury	0 - 3	14	2	0	22	38 - 41	0
	Illness	-	75	25 - 71	-14 - -55	11	111 - 157	-14 - -55
	Non-injury	67 - 272	-	13 - 33	-	27	107 - 332	-
	Total	67 - 275	89	39 - 107	-14 - -55	60	255 - 530	-14 - -55
Yorkshire and Humberside	Injury	1 - 4	21	3 - 6	-1 - -3	48	73 - 78	-1 - -3
	Illness	-	69	21 - 56	-10 - -42	9	99 - 135	-10 - -42
	Non-injury	87 - 352	-	16 - 43	-	35	138 - 431	-
	Total	87 - 356	90	40 - 105	-11 - -45	92	311 - 644	-11 - -44
North West	Injury	1 - 4	21	3	0	29	53 - 57	0
	Illness	-	69	42 - 145	-30 - -122	41	152 - 255	-30 - -122
	Non-injury	87 - 353	-	16 - 43	-	35	139 - 431	-
	Total	87 - 357	90	61 - 192	-31 - -122	105	343 - 743	-31 - -122
North	Injury	0 - 2	15	2	0	28	45 - 47	0
	Illness	-	28	8 - 20	-4 - -15	17	53 - 65	-4 - -15
	Non-injury	52 - 211	-	10 - 26	-	21	83 - 258	-
	Total	52 - 213	43	19 - 48	-4 - -15	66	180 - 370	-4 - -15
Scotland	Injury	0 - 4	25	3	0	46	75 - 79	0
	Illness	-	77	22 - 60	-11 - -45	11	110 - 148	-11 - -45
	Non-injury	72 - 293	-	14 - 36	-	29	115 - 358	-
	Total	72 - 296	102	39 - 99	-11 - -45	87	300 - 584	-11 - -45
Wales	Injury	0 - 2	12	2 - 4	-1 - -3	34	48 - 52	-1 - -3
	Illness	-	37	14 - 43	-8 - -34	19	70 - 99	-8 - -34
	Non-injury	49 - 198	-	9 - 24	-	20	78 - 242	-
	Total	49 - 200	49	25 - 71	-9 - -37	73	196 - 393	-9 - -37
London	Injury	1 - 4	31	5 - 11	-2 - -7	103	139 - 149	-2 - -7
	Illness	-	56	35 - 125	-27 - -106	53	143 - 233	-27 - -106
	Non-injury	101 - 411	-	19 - 50	-	41	161 - 502	-
	Total	102 - 415	87	59 - 186	-28 - -113	197	444 - 884	-28 - -113

Notes
(a) See footnote (a) in Table 1.

Table 56 continued

Occupation		*Damage (£m)*	*Production costs (£m)*	*Administration and recruitment (£m)*		*Insurance (£m)*	*Total (£m)*	
				1995/96 costs	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
Craft & related	Injury	1 - 10	57	8 - 10	-1 - -3	106	172 - 183	-1 - -3
	Illness	-	73	36 - 117	-24 - -95	41	150 - 231	-24 - -95
	Non-injury	221 - 898	-	42 - 110	-	90	353 - 1 099	-
	Total	222 - 909	129	86 - 237	-24 - -97	237	675 - 1 512	-24 - -97
Plant & machine operatives	Injury	1 - 9	47	7 - 8	0 - -2	132	186 - 196	0 - -2
	Illness	-	60	24 - 71	-14 - -55	45	129 - 176	-14 - -55
	Non-injury	155 - 628	-	29 - 77	-	63	247 - 768	-
	Total	156 - 637	107	60 - 156	-14 - -57	239	562 - 1 140	-14 - -57
Other occupations	Injury	1 - 6	22	3	0	45	71 - 76	0
	Illness	-	41	21 - 62	-12 - -48	33	95 - 136	-12 - -48
	Non-injury	101 - 412	-	19 - 51	-	41	162 - 504	-
	Total	102 - 418	63	43 - 116	-12 - -48	120	329 - 717	-12 - -48
Personal & protective services	Injury	1 - 6	30	5 - 7	-1 - -3	64	99 - 106	-1 - -3
	Illness	-	89	57 - 191	-39 - -158	71	217 - 351	-39 - -158
	Non-injury	133 - 541	-	25 - 66	-	54	212 - 661	-
	Total	134 - 547	119	87 - 264	-40 - -161	188	529 - 1 119	-40 - -161
Associate professionals & technical	Injury	0 - 2	17	4 - 10	-2 - -8	76	98 - 106	2 - -8
	Illness	-	87	37 - 127	-27 - -107	39	163 - 253	-27 - -107
	Non-injury	61 - 248	-	12 - 30	-	25	97 - 303	-
	Total	61 - 250	104	52 - 168	-29 - -114	140	358 - 662	-29 - -114
Sales	Injury	0 - 2	9	2 - 4	-1 - -3	34	46 - 50	-1 - -3
	Illness	-	27	17 - 56	-12 - -47	5	49 - 88	-12 - -47
	Non-injury	48 - 194	-	9 - 24	-	19	76 - 238	-
	Total	48 - 196	36	28 - 84	-12 - -49	59	171 - 376	-12 - -49
Managers & administrators	Injury	0 - 2	30	2	0	29	62 - 64	0
	Illness	-	187	46 - 142	-28 - -114	17	250 - 346	-28 - -114
	Non-injury	75 - 307	-	14 - 38	-	31	120 - 375	-
	Total	76 - 309	217	63 - 182	-28 - -114	77	432 - 786	-28 - -114
Professionals	Injury	0 - 2	13	2 - 7	-1 - -5	33	49 - 55	-1 - -5
	Illness	-	45	39 - 147	-32 - -127	14	98 - 206	-32 - -127
	Non-injury	51 - 207	-	10 - 25	-	21	81 - 253	-
	Total	51 - 209	58	51 - 179	-33 - -132	68	228 - 514	-33 - -132
Clerical & secretarial	Injury	0 - 2	11	2 - 3	0 - -1	32	45 - 48	0 - -1
	Illness	-	73	27 - 77	-15 - -59	13	113 - 163	-15 - -59
	Non-injury	57 - 231	-	11 - 28	-	23	91 - 283	-
	Total	57 - 234	84	40 - 108	-15 - -60	69	249 - 494	-15 - -60

Notes
(a) See footnote (a) in Table 1.

Table 57 Total costs to society of workplace injuries and non-injury accidents and work-related illness by industry, region and occupation

Industry		*Output loss (£ billions)*		*Other resources costs (£ billions)*		*Subjective costs (£ billions)*	*Total cost (£ billions)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*		*1995/96 costs*	*NPV of future costs*
Agriculture	Injury	0.02	0.01	0.02	0.00	0.06	0.09 - 0.10	0.01
	Illness	-	-	0.02 - 0.14	-	-	0.02 - 0.14	-
	Non-injury	0.04	0.00	0.01 - 0.03	0.00 - -0.01	0.02	0.08 - 0.10	0.00 - -0.01
	Total	0.06	0.01	0.05 - 0.19	0.00 - -0.01	0.08	0.19 - 0.34	-0.01 - 0.00
Manufacturing	Injury	0.03	0.21	0.07 - 0.14	0.00	0.42	0.54 - 0.60	0.23-0.21
	Illness	-	-	0.23 - 1.40	-	-	0.23 - 1.40	-
	Non-injury	0.26	0.93	0.10 - 0.30	-0.02 - -0.15	0.80	1.14 - 1.34	0.91-0.78
	Total	0.29	1.14	0.40 - 1.83	-0.02 - -0.15	1.22	1.90 - 3.34	1.12-0.98
Distribution & repair	Injury	0.05	0.01	0.02 - 0.05	0.00	0.12	0.19 - 0.23	0.01
	Illness	-	-	0.12 - 0.76	-	-	0.12 - 0.76	-
	Non-injury	0.09	0.00	0.04 - 0.11	-0.01 - -0.04	0.13	0.27 - 0.34	-0.01 - -0.03
	Total	0.15	0.01	0.18 - 0.93	-0.01 - -0.04	0.25	0.58 - 1.33	0 - -0.02
Construction	Injury	0.06	0.02	0.03 - 0.05	0.00	0.15	0.24 - 0.26	0.02
	Illness	-	-	0.44	-	-	0.44	-
	Non-injury	0.09	0.30	0.04 - 0.14	-0.01 - -0.06	0.29	0.41 - 0.51	0.29 - 0.24
	Total	0.15	0.33	0.51 - 0.63	-0.01 - -0.06	0.44	1.09 - 1.21	0.32 - 0.26
Consumer/ leisure	Injury	0.02	0.07	0.01 - 0.02	0.00	0.10	0.14 - 0.15	0.08
	Illness	-	-	0.04 - 0.26	-	-	0.04 - 0.26	-
	Non-injury	0.05	-0.01	0.03 - 0.09	-0.01 - -0.05	0.03	0.11 - 0.17	-0.02 - -0.05
	Total	0.07	0.06	0.08 - 0.37	-0.01 - -0.05	0.14	0.30 - 0.59	0.05 - 0.02
Hotels & restaurants	Injury	0.09	0.00	0.01 - 0.02	0.00	0.04	0.13 - 0.14	0.00
	Illness	-	-	0.05 - 0.28	-	-	0.05 - 0.28	-
	Non-injury	0.20	0.17	0.01 - 0.04	0.00 - -0.01	0.21	0.45 - 0.47	0.17 - 0.16
	Total	0.28	0.17	0.07 - 0.34	0.00 - -0.01	0.25	0.62 - 0.89	0.17 - 0.16
Transport & communication	Injury	0.06	0.01	0.02 - 0.03	0.00	0.09	0.17 - 0.19	0.01
	Illness	-	-	0.10 - 0.13	-	-	0.10 - 0.13	-
	Non-injury	0.36	0.29	0.04 - 0.11	-0.01 - -0.06	0.27	0.71 - 0.79	0.28 - 0.24
	Total	0.42	0.30	0.15 - 0.27	-0.01 - -0.06	0.36	0.98 - 1.11	0.29 - 0.24
Finance & business	Injury	0.04	0.00	0.01 - 0.02	0.00	0.05	0.10 - 0.11	0.00
	Illness	-	-	0.00 - 0.01	-	-	0.00 - 0.01	-
	Non-injury	0.08	0.00	0.02 - 0.06	-0.01 - -0.02	0.05	0.17 - 0.21	0.00 - -0.02
	Total	0.12	0.00	0.03 - 0.10	-0.01 - -0.02	0.11	0.27 - 0.33	0.00 - -0.01
Public admin & defence	Injury	0.06	0.07	0.02 - 0.04	0.00	0.14	0.22 - 0.24	0.07
	Illness	-	-	0.06 - 0.38	-	-	0.06 - 0.38	-
	Non-injury	0.13	0.31	0.05 - 0.15	-0.02 - -0.08	0.30	0.49 - 0.58	0.30 - 0.24
	Total	0.19	0.39	0.13 - 0.57	-0.01 - -0.09	0.44	0.77 - 1.21	0.37 - 0.31
Education	Injury	0.02	0.05	0.01 - 0.02	0.00	0.08	0.11 - 0.12	0.06
	Illness	-	-	0.04 - 0.25	-	-	0.04 - 0.25	-
	Non-injury	0.08	0.67	0.04 - 0.13	-0.01 - -0.07	0.58	0.66 - 0.76	0.66 - 0.59
	Total	0.10	0.72	0.09 - 0.41	-0.01 - -0.07	0.66	0.81 - 1.13	0.72 - 0.64
Health & social work	Injury	0.06	0.12	0.03 - 0.05	0.00 - -0.01	0.19	0.28 - 0.31	0.12
	Illness	-	-	0.13	-	-	0.13	-
	Non-injury	0.22	1.45	0.09 - 0.27	0.00 - -0.12	1.29	1.53 - 1.71	1.44 - 1.30
	Total	0.27	1.57	0.25 - 0.45	0.00 - -0.13	1.49	1.95 - 2.15	1.56 - 1.42
Energy & water supply	Injury	0.01	0.01	0.00 - 0.01	0.00	0.03	0.04 - 0.05	0.01
	Illness	-	-	0.20 - 0.29	-	-	0.20 - 0.29	-
	Non-injury	0.09	0.00	0.02 - 0.05	-0.01 - -0.03	0.03	0.15 - 0.18	-0.01 - -0.02
	Total	0.09	0.01	0.22 - 0.35	-0.01 - -0.03	0.06	0.39 - 0.52	0.00 - -0.01

Notes
(a) See footnote (a) in Table 1.

Table 57 continued

Region		*Output loss (£ billions)*		*Other resources costs (£ billions)*		*Subjective costs (£ billions)*	*Total cost (£ billions)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs*		*1995/96 costs*	*NPV of future costs*
South East	Injury	0.10	0.16	0.04 - 0.09	0.00	0.30	0.43 - 0.48	0.16
	Illness	-	-	0.30 - 0.93	-	-	0.30 - 0.93	-
	Non-injury	0.38	0.97	0.11 - 0.34	-0.03 - -0.18	0.89	1.38 - 1.61	0.95 - 0.80
	Total	0.48	1.13	0.45 - 1.37	-0.03 - -0.18	1.19	2.11 - 3.03	1.11 - 0.96
East Anglia	Injury	0.02	0.00	0.01 - 0.02	0.00	0.04	0.07 - 0.08	0.00
	Illness	-	-	0.06 - 0.18	-	-	0.06 - 0.18	-
	Non-injury	0.04	0.00	0.02 - 0.05	-0.01 - -0.02	0.03	0.09 - 0.13	0.00 - -0.02
	Total	0.06	0.00	0.08 - 0.24	-0.01 - -0.02	0.07	0.21 - 0.38	0.00 - -0.02
South West	Injury	0.04	0.09	0.02 - 0.05	0.00	0.17	0.23 - 0.25	0.09
	Illness	-	-	0.12 - 0.38	-	-	0.12 - 0.38	-
	Non-injury	0.12	0.20	0.05 - 0.16	-0.02 - -0.10	0.24	0.41 - 0.52	0.18 - -0.11
	Total	0.16	0.29	0.19 - 0.59	-0.02 - -0.10	0.40	0.76 - 1.15	0.27 - 0.20
West Midlands	Injury	0.06	0.00	0.03 - 0.05	0.00	0.12	0.21 - 0.23	0.00
	Illness	-	-	0.14 - 0.44	-	-	0.14 - 0.44	-
	Non-injury	0.12	0.62	0.04 - 0.12	0.00 - -0.05	0.60	0.76 - 0.84	0.61 - 0.55
	Total	0.18	0.62	0.21 - 0.62	0.00 - -0.05	0.72	1.11 - 1.52	0.62 - 0.56
East Midlands	Injury	0.03	0.00	0.01 - 0.03	0.00	0.08	0.12 - 0.14	0.00
	Illness	-	-	0.11 - 0.33	-	-	0.11 - 0.33	-
	Non-injury	0.16	0.00	0.04 - 0.12	-0.01 - -0.06	0.07	0.28 - 0.36	-0.01 - -0.05
	Total	0.19	0.00	0.16 - 0.48	-0.01 - -0.06	0.15	0.51 - 0.83	-0.01 - -0.04
Yorkshire and Humberside	Injury	0.05	0.05	0.02 - 0.04	0.00	0.15	0.22 - 0.25	0.05
	Illness	-	-	0.14 - 0.43	-	-	0.14 - 0.43	-
	Non-injury	0.15	0.00	0.04 - 0.10	-0.01 - -0.04	0.07	0.26 - 0.32	-0.01 - -0.03
	Total	0.20	0.05	0.20 - 0.58	-0.01 - -0.04	0.22	0.62 - 1.00	0.04 - 0.02
North West	Injury	0.04	0.01	0.02 - 0.04	0.00	0.11	0.17 - 0.19	0.01
	Illness	-	-	0.14 - 0.43	-	-	0.14 - 0.43	-
	Non-injury	0.18	0.58	0.06 - 0.20	-0.02 - -0.11	0.59	0.83 - 0.96	0.57 - 0.48
	Total	0.22	0.59	0.22 - 0.67	-0.02 - -0.11	0.69	1.13 - 1.58	0.57 - 0.48
North	Injury	0.03	0.01	0.01 - 0.03	0.00	0.06	0.10 - 0.12	0.01
	Illness	-	-	0.08 - 0.26	-	-	0.08 - 0.26	-
	Non-injury	0.07	0.24	0.02 - 0.04	0.00 - -0.01	0.25	0.34 - 0.37	0.24 - 0.22
	Total	0.10	0.24	0.11 - 0.33	0.00 - -0.01	0.31	0.53 - 0.74	0.24 - 0.22
Scotland	Injury	0.05	0.01	0.02 - 0.04	0.00	0.12	0.19 - 0.21	0.01
	Illness	-	-	0.11 - 0.36	-	-	0.11 - 0.36	-
	Non-injury	0.17	0.00	0.04 - 0.11	-0.01 - -0.04	0.07	0.28 - 0.35	-0.01 - -0.04
	Total	0.22	0.01	0.18 - 0.51	-0.01 - -0.04	0.19	0.59 - 0.92	0.00 - -0.03
Wales	Injury	0.03	0.07	0.01 - 0.03	0.00	0.10	0.14 - 0.15	0.07
	Illness	-	-	0.08 - 0.24	-	-	0.08 - 0.24	-
	Non-injury	0.09	0.24	0.03 - 0.07	0.00 - -0.03	0.26	0.37 - 0.42	0.24 - 0.21
	Total	0.12	0.31	0.12 - 0.34	0.00 - -0.03	0.36	0.59 - 0.82	0.31 - 0.28
London	Injury	0.08	0.19	0.03 - 0.06	0.00	0.25	0.36 - 0.39	0.19
	Illness	-	-	0.16 - 0.50	-		0.16 - 0.50	-
	Non-injury	0.18	1.28	0.05 - 0.17	0.00 - -0.08	0.93	1.17 - 1.28	1.27 - 1.17
	Total	0.26	1.47	0.25 - 0.73	0.00 - -0.08	1.18	1.69 - 2.17	1.47 - 1.36

Notes
(a) See footnote (a) in Table 1.

Table 57 continued

Occupation		*Output loss (£ billions)*		*Other resources costs (£ billions)*		*Subjective costs (£ billions)*	*Total cost (£ billions)*	
		1995/96 costs	*NPV of future costs*	*1995/96 costs*	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
Craft & related	Injury	0.12	0.09	0.05 - 0.11	0.00	0.34	0.52 - 0.57	0.09
	Illness	-	-	0.35 - 1.10	-	-	0.35 - 1.10	-
	Non-injury	0.19	0.64	0.07 - 0.19	-0.01 - -0.08	0.65	0.91 - 1.03	0.63 - 0.56
	Total	0.31	0.73	0.47 - 1.40	-0.01 - -0.08	1.00	1.78 - 2.71	0.72 - 0.65
Plant & machine operatives	Injury	0.10	0.08	0.05 - 0.10	0.00	0.32	0.47 - 0.52	0.09
	Illness	-	-	0.25 - 0.77	-	-	0.25 - 0.77	-
	Non-injury	0.16	0.64	0.05 - 0.14	0.00 - -0.04	0.67	0.88 - 0.96	0.64 - 0.60
	Total	0.27	0.72	0.35 - 1.00	0.00 - -0.04	0.98	1.59 - 2.25	0.73 - 0.68
Other occupations	Injury	0.05	0.00	0.03 - 0.06	0.00	0.13	0.21 - 0.24	0.00
	Illness	-	-	0.16 - 0.50	-	-	0.16 - 0.50	-
	Non-injury	0.11	0.41	0.04 - 0.11	0.00 - -0.04	0.51	0.67 - 0.74	0.41 - 0.37
	Total	0.16	0.41	0.23 - 0.67	0.00 - -0.04	0.64	1.03 - 1.48	0.41 - 0.38
Personal & protective services	Injury	0.07	0.05	0.03 - 0.06	0.00	0.20	0.30 - 0.33	0.05
	Illness	-	-	0.21 - 0.66	-	-	0.21 - 0.66	-
	Non-injury	0.26	1.13	0.09 - 0.27	-0.01 - -0.13	1.10	1.45 - 1.62	1.11 - 1.00
	Total	0.33	1.18	0.33 - 0.99	-0.01 - -0.13	1.30	1.96 - 2.62	1.17 - 1.05
Associate professionals & technical	Injury	0.04	0.19	0.02 - 0.04	0.00 - -0.01	0.16	0.23 - 0.24	0.19 - 0.18
	Illness	-	-	0.10 - 0.30	-	-	0.10 - 0.30	-
	Non-injury	0.20	0.87	0.06 - 0.18	-0.01 - -0.09	0.57	0.85 - 0.97	0.86 - 0.78
	Total	0.26	1.06	0.18 - 0.52	-0.01 - -0.10	0.73	1.17 - 1.52	1.05 - 0.96
Sales	Injury	0.02	0.05	0.01 - 0.03	0.00	0.08	0.12 - 0.13	0.05 - 0.04
	Illness	-	-	0.08 - 0.24	-	-	0.08 - 0.24	-
	Non-injury	0.06	0.00	0.02 - 0.09	-0.01 - -0.05	0.05	0.13 - 0.19	-0.01 - -0.05
	Total	0.08	0.05	0.11 - 0.35	-0.01 - -0.05	0.13	0.32 - 0.56	0.03 - 0.00
Managers & administrators	Injury	0.06	0.01	0.02 - 0.03	0.00	0.08	0.15 - 0.17	0.10
	Illness	-	-	0.12 - 0.38	-	-	0.12 - 0.38	-
	Non-injury	0.41	-	0.07 - 0.21	-0.03 - -0.11	0.09	0.56 - 0.70	-0.03 - -0.11
	Total	0.47	0.01	0.21 - 0.61	-0.03 - -0.11	0.16	0.84 - 1.24	-0.02 - -0.11
Professionals	Injury	0.03	0.09	0.01 - 0.03	0.00	0.09	0.13 - 0.15	0.09
	Illness	-	-	0.09 - 0.25	-	-	0.09 - 0.25	-
	Non-injury	0.11	0.44	0.05 - 0.17	-0.03 - -0.12	0.27	0.42 - 0.55	0.42 - 0.32
	Total	0.14	0.53	0.14 - 0.45	-0.03 - -0.12	0.36	0.64 - 0.95	0.51 - 0.41
Clerical & secretarial	Injury	0.03	0.03	0.01 - 0.03	0.00	0.08	0.12 - 0.14	0.03
	Illness	-	-	0.09 - 0.28	-	-	0.09 - 0.28	-
	Non-injury	0.16	0.00	0.05 - 0.14	-0.01 - -0.06	0.10	0.31 - 0.40	-0.01 - -0.06
	Total	0.19	0.03	0.15 - 0.45	-0.01 - -0.06	0.18	0.52 - 0.82	0.02 - -0.03

Notes
(a) See footnote (a) in Table 1.

Table 58 Summary: costs of workplace injuries and non-injury accidents and work-related illness to society, individuals and employers, broken down by industry, region and occupation

Industry	*Cost to:*	*Work injuries (£ billions)*		*Work-related illness (£ billions)*		*Non-injury accidents (£ billions)*	*Total (£ billions)*	
		1995/96 costs	*NPV of future costs[(a)]*	*1995/96 costs*	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
Agriculture	Society	0.09 - 0.10	0.01	0.08 - 0.10	0.00 - -0.01	0.02-0.14	0.19 - 0.33	0.00 - -0.01
	Individuals	0.06	0.00	0.02	0.00	-	0.08	0.00
	Employers	0.03	0.00	0.03 - 0.05	0.00 - -0.01	0.02-0.14	0.09 - 0.22	0.00 - -0.01
Manufacturing	Society	0.54 - 0.60	0.21	1.14 - 1.34	0.91 - 0.78	0.23-1.40	1.89 - 3.30	1.10 - 0.97
	Individuals	0.38	0.08	0.86	0.26	-	1.24	0.33
	Employers	0.28 - 0.30	0.00 - -0.01	0.27 - 0.41	-0.04 - -0.17	0.23 - 1.40	0.78 - 2.11	-0.04 - -0.18
Distribution & repair	Society	0.19 - 0.23	0.01	0.27 - 0.34	-0.01 - -0.03	0.12 - 0.76	0.57 - 1.30	0.00 - -0.03
	Individuals	0.10	0.00	0.11	0.00	-	0.21	0.00
	Employers	0.06	0.00	0.08 - 0.12	-0.01 - -0.04	0.12 - 0.76	0.26 - 0.94	-0.01 - -0.04
Construction	Society	0.24 - 0.26	0.02	0.41 - 0.51	0.29 - 0.24	0.44	1.07 - 1.20	0.32 - 0.27
	Individuals	0.14	0.00	0.32	0.09	-	0.46	0.10
	Employers	0.05	0.00	0.10 - 0.16	-0.02 - -0.07	0.44	0.58 - 0.65	-0.02 - -0.07
Consumer/ leisure	Society	0.14 - 0.15	0.08 - 0.07	0.11 - 0.17	-0.02 - -0.05	0.04 - 0.26	0.29 - 0.57	0.04 - 0.00
	Individuals	0.10	0.02	0.04	0.00	-	0.14	0.02
	Employers	0.06	0.00	0.05 - 0.10	-0.01 - -0.05	0.04 - 0.26	0.15 - 0.42	-0.01 - -0.06
Hotels & restaurants	Society	0.13 - 0.14	0.00	0.45 - 0.47	0.17 - 0.16	0.05 - 0.28	0.62 - 0.89	0.18 - 0.16
	Individuals	0.03	0.00	0.22	0.04	-	0.25	0.00
	Employers	0.02	0.00	0.04 - 0.05	0.00 - -0.02	0.05 - 0.28	0.10 - 0.35	0.00 - -0.02
Transport & communication	Society	0.17 - 0.19	0.10	0.71 - 0.79	0.28 - 0.24	0.10 - 0.13	0.99 - 1.13	0.30 - 0.25
	Individuals	0.08	0.00	0.29	0.09	-	0.37	0.09
	Employers	0.05 - 0.06	0.00	0.09 - 0.14	-0.02 - -0.06	0.10 - 0.13	0.24 - 0.33	-0.02 - -0.06
Finance & business	Society	0.10 - 0.11	0.00	0.17 - 0.21	0.00 - -0.02	0.00 - 0.01	0.27 - 0.33	0.00 - -0.01
	Individuals	0.05	0.00	0.07	0.00	-	0.12	0.00
	Employers	0.03 - 0.04	0.00	0.07 - 0.09	-0.01 - -0.02	0.00 - 0.01	0.11 - 0.14	-0.01 - -0.02
Public admin & defence	Society	0.22 - 0.24	0.07	0.49 - 0.58	0.30 - 0.24	0.06 - 0.38	0.77 - 1.20	0.37 - 0.30
	Individuals	0.12	0.03	0.33	0.09	-	0.46	0.11
	Employers	0.08 - 0.09	0.00	0.13 - 0.21	-0.02 - -0.09	0.06 - 0.38	0.28 - 0.68	-0.02 - -0.09
Education	Society	0.11 - 0.12	0.06 - 0.05	0.66 - 0.76	0.66 - 0.59	0.04 - 0.25	0.83 - 1.15	0.73 - 0.65
	Individuals	0.08	0.02	0.60	0.19	-	0.68	0.21
	Employers	0.04	0.00	0.10 - 0.17	-0.02 - -0.08	0.04 - 0.25	0.18 - 0.46	-0.02 - -0.09
Health & social work	Society	0.28 - 0.31	0.12	1.53 - 1.71	1.44 - 1.30	0.13	1.98 - 2.21	1.58 - 1.44
	Individuals	0.18	0.04	1.36	0.40	-	1.53	0.44
	Employers	0.10 - 0.11	0.00 - 0.01	0.24 - 0.37	-0.04 - -0.16	0.13	0.48 - 0.62	-0.04 - -0.16
Energy & water supply	Society	0.04 - 0.05	0.10	0.15 - 0.18	-0.01 - -0.02	0.20 - 0.29	0.38 - 0.51	0.00 - -0.02
	Individuals	0.03	0.00	0.05	0.00	-	0.08	0.00
	Employers	0.02	0.00	0.07 - 0.09	-0.01 - -0.03	0.20 - 0.29	0.29 - 0.40	-0.01 - -0.03

Notes
(a) See footnote (a) in Table 1.

Table 58 continued

Region	*Cost to:*	*Work injuries (£ billions)*		*Work-related illness (£ billions)*		*Non-injury accidents (£ billions)*	*Total (£ billions)*	
		1995/96 costs	*NPV of future costs[(a)]*	*1995/96 costs*	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
South East	Society	0.43 - 0.48	0.16	1.38 - 1.61	0.95 - 0.80	0.30 - 0.93	2.12 - 3.02	1.11 - 0.95
	Individuals	0.27	0.06	0.96	0.28	-	1.23	0.34
	Employers	0.14 - 0.16	0.00 - -0.01	0.29 - 0.45	-0.05 - -0.20	0.30 - 0.93	0.73 - 1.54	-0.05 - -0.20
East Anglia	Society	0.07 - 0.08	0.00	0.09 - 0.13	0.00 - -0.02	0.06 - 0.18	0.20 - 0.39	0.00 - -0.02
	Individuals	0.03	0.00	0.04	0.00	-	0.07	0.00
	Employers	0.02 - 0.03	0.00	0.03 - 0.05	-0.01 - -0.02	0.06 - 0.18	0.11 - 0.26	-0.01 - -0.02
South West	Society	0.23 - 0.25	0.09	0.41 - 0.52	0.18 - 0.11	0.12 - 0.38	0.75 - 1.15	0.26 - 0.19
	Individuals	0.15	0.03	0.26	0.05	-	0.41	0.08
	Employers	0.10	0.00	0.10 - 0.19	-0.03 - -0.10	0.12 - 0.38	0.33 - 0.66	-0.03 - -0.11
West Midlands	Society	0.21 - 0.23	0.00	0.76 - 0.84	0.61 - 0.55	0.14 - 0.44	1.12 - 1.51	0.63 - 0.57
	Individuals	0.10	0.00	0.62	0.16	-	0.72	0.17
	Employers	0.09 - 0.10	0.00	0.10 - 0.16	-0.02 - -0.07	0.14 - 0.44	0.34 - 0.71	-0.02 - -0.07
East Midlands	Society	0.12 - 0.14	0.00	0.28 - 0.36	-0.01 - -0.05	0.11 - 0.33	0.50 - 0.85	-0.01 - -0.04
	Individuals	0.07	0.00	0.10	0.00	-	0.17	0.00
	Employers	0.04	0.00	0.11 - 0.16	-0.01 - -0.06	0.11 - 0.33	0.25 - 0.53	-0.01 - -0.06
Yorkshire and Humberside	Society	0.22 - 0.25	0.05	0.26 - 0.32	-0.01 - -0.03	0.14 - 0.43	0.60 - 1.03	0.04 - 0.01
	Individuals	0.14	0.01	0.09	0.00	-	0.23	0.01
	Employers	0.07 - 0.08	0.00	0.10 - 0.13	-0.01 - -0.04	0.14 - 0.43	0.31 - 0.65	-0.01 - -0.04
North West	Society	0.17 - 0.19	0.01	0.83 - 0.96	0.57 - 0.48	0.14 - 0.43	1.14 - 1.57	0.58 - 0.49
	Individuals	0.09	0.00	0.62	0.16	-	0.70	0.16
	Employers	0.05 - 0.06	0.00	0.15 - 0.25	-0.03 - -0.12	0.14 - 0.43	0.34 - 0.74	-0.03 - -0.12
North	Society	0.10 - 0.12	0.00	0.34 - 0.37	0.24 - 0.22	0.08 - 0.26	0.53 - 0.75	0.24 - 0.23
	Individuals	0.05	0.00	0.26	0.06	-	0.31	0.06
	Employers	0.05	0.00	0.05 - 0.07	0.00 - -0.01	0.08 - 0.26	0.18 - 0.38	0.00 - -0.01
Scotland	Society	0.19 - 0.21	0.01	0.28 - 0.35	-0.01 - -0.04	0.11 - 0.36	0.57 - 0.93	0.00 - -0.03
	Individuals	0.10	0.00	0.09	0.00	-	0.19	0.00
	Employers	0.08	0.00	0.11 - 0.15	-0.01 - -0.04	0.11 - 0.36	0.30 - 0.58	-0.01 - -0.04
Wales	Society	0.14 - 0.15	0.07	0.37 - 0.42	0.24 - 0.21	0.08 - 0.24	0.59 - 0.81	0.30 - 0.27
	Individuals	0.09	0.02	0.27	0.06	-	0.36	0.08
	Employers	0.05	0.00	0.07 - 0.10	-0.01 - -0.03	0.08 - 0.24	0.20 - 0.39	-0.01 - -0.04
London	Society	0.36 - 0.39	0.19	1.17 - 1.28	1.27 - 1.17	0.16 - 0.50	1.72 - 2.13	1.46 - 1.36
	Individuals	0.24	0.07	0.98	0.38	-	1.21	0.45
	Employers	0.14 - 0.15	0.00 - 0.01	0.14 - 0.23	-0.03 - -0.11	0.16 - 0.50	0.45 - 0.88	-0.03 - -0.11

Notes
(a) See footnote (a) in Table 1.

Table 58 continued

Occupation	*Cost to:*	*Work injuries (£ billions)*		*Work-related illness (£ billions)*		*Non-injury accidents (£ billions)*	*Total (£ billions)*	
		1995/96 costs	*NPV of future costs[(a)]*	*1995/96 costs*	*NPV of future costs[(a)]*		*1995/96 costs*	*NPV of future costs[(a)]*
Craft & related	Society	0.52 - 0.57	0.09	0.91 - 1.03	0.63 - 0.56	0.35 - 1.10	1.74 - 2.76	0.72 - 0.65
	Individuals	0.30	0.03	0.69	0.17	-	0.99	0.19
	Employers	0.17 - 0.18	0.00	0.15 - 0.23	-0.02 - -0.09	0.35 - 1.10	0.65 - 1.55	-0.02 - -0.10
Plant & machine operatives	Society	0.47 - 0.52	0.09 - 0.08	0.88 - 0.96	0.64 - 0.60	0.25 - 0.77	1.59 - 2.27	0.73-0.68
	Individuals	0.28	0.02	0.69	0.16	-	0.97	0.19
	Employers	0.19 - 0.20	0.00	0.13 - 0.18	-0.01 - -0.06	0.25 - 0.77	0.56 - 1.16	-0.01 - -0.06
Other occupations	Society	0.21 - 0.24	0.00	0.67 - 0.74	0.41 - 0.37	0.16 - 0.50	1.03 - 1.49	0.41 - 0.38
	Individuals	0.11	0.00	0.53	0.09	-	0.63	0.09
	Employers	0.07 - 0.08	0.00	0.10 - 0.14	-0.01 - -0.05	0.16 - 0.50	0.32 - 0.73	-0.01 - -0.05
Personal & protective services	Society	0.30 - 0.33	0.05	1.45 - 1.62	1.11 - 1.00	0.21 - 0.66	1.99 - 2.58	1.17 - 1.05
	Individuals	0.18	0.02	1.14	0.29	-	1.32	0.31
	Employers	0.10 - 0.11	0.00	0.22 - 0.35	-0.04 - -0.16	0.21 - 0.66	0.53 - 1.11	-0.04 - -0.16
Associate professionals & technical	Society	0.23 - 0.24	0.19 - 0.18	0.85 - 0.97	0.86 - 0.78	0.10 - 0.30	1.20 - 1.47	1.05 - 0.96
	Individuals	0.16	0.06	0.62	0.29	-	0.78	0.35
	Employers	0.10 - 0.11	0.00 - -0.01	0.16 - 0.25	-0.03 - -0.11	0.10 - 0.30	0.38 - 0.64	-0.03 - -0.11
Sales	Society	0.12 - 0.13	0.05 - 0.04	0.13 - 0.19	-0.01 - -0.05	0.08 - 0.24	0.31 - 0.57	0.03 - 0.00
	Individuals	0.08	0.01	0.05	0.00	-	0.13	0.01
	Employers	0.05	0.00	0.05 - 0.09	-0.01 - -0.05	0.08 - 0.24	0.17 - 0.38	-0.01 - -0.05
Managers & administrators	Society	0.15 - 0.17	0.01	0.56 - 0.70	-0.03 - -0.11	0.12 - 0.38	0.84 - 1.24	-0.02 - -0.11
	Individuals	0.07	0.00	0.16	0.00	-	0.23	0.00
	Employers	0.06	0.00	0.25 - 0.35	-0.03 - -0.11	0.12 - 0.38	0.45 - 0.76	-0.03 - -0.11
Professionals	Society	0.13 - 0.15	0.09 - 0.08	0.42 - 0.55	0.42 - 0.32	0.08 - 0.25	0.64 - 0.94	0.51 - 0.41
	Individuals	0.09	0.04	0.29	0.16	-	0.38	0.19
	Employers	0.05	0.00 - -0.01	0.10 - 0.21	-0.03 - -0.13	0.08 - 0.25	0.23 - 0.50	-0.03 - -0.13
Clerical & secretarial	Society	0.12 - 0.14	0.03	0.31 - 0.40	-0.01 - -0.06	0.09 - 0.28	0.52 - 0.83	0.02 - -0.03
	Individuals	0.07	0.01	0.12	0.00	-	0.19	0.01
	Employers	0.05	0.00	0.11 - 0.16	-0.01 - -0.06	0.09 - 0.28	0.25 - 0.49	-0.02 - -0.06

Notes
(a) See footnote (a) in Table 1.

Unit costs

2 Differences in typical unit costs are mainly due to the 'typical' injury occurring in a category being more or less serious. It should be taken into account though, that some of these estimates, in particular those for serious or major injuries (see footnote (b) to Table 29), are affected by the (small) number of those who never return to work. The previous warnings relating to the use of small samples apply here. The unit cost estimates by individual category should, therefore, be regarded as only broadly indicative of the typical unit costs faced by employers and society. Typical unit costs include the net present value of future costs. Totals may not add up due to rounding.

Table 59 Typical unit costs to employers by workplace, accident type and by industry, region, and occupation

Industry	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
Agriculture	Damage	20	20	20	20	132
	Extra production	281	1 741	393	9	-
	Administration	40	249	56	1	11
	Insurance and compensation	910	12 449	-	-	15
	Total	1 251	14 459	470	31	158
Manufacturing	Damage	23	23	23	23	132
	Extra production	295	2 567	416	14	-
	Administration	33	284	46	2	11
	Insurance and compensation	771	12 449	-	-	15
	Total	1 123	15 323	486	39	158
Distribution & repair	Damage	20	20	20	20	132
	Extra production	156	1 848	329	14	-
	Administration	21	252	45	2	11
	Insurance and compensation	221	12 449	-	-	15
	Total	419	14 568	394	36	158
Construction	Damage	6	6	6	6	28
	Extra production	233	2 447	410	18	-
	Administration	25	263	44	2	19
	Insurance and compensation	197	12 449	-	-	15
	Total	460	15 165	460	25	62
Consumer/leisure	Damage	21	21	21	21	132
	Extra production	178	1 484	339	12	-
	Administration	26	220	50	2	11
	Insurance and compensation	955	12 449	-	-	15
	Total	1 180	14 173	411	35	158
Hotels & restaurants	Damage	21	21	21	21	132
	Extra production	133	2 582	200	9	-
	Administration	23	449	35	1	11
	Insurance and compensation	203	12 449	-	-	15
	Total	381	15 502	256	31	158
Transport & communication	Damage	9	9	9	9	44
	Extra production	301	2 984	443	13	-
	Administration	32	313	46	1	11
	Insurance and compensation	342	12 449	-	-	15
	Total	684	15 756	499	24	70
Finance & business	Damage	23	23	23	23	132
	Extra production	235	2 479	434	18	-
	Administration	21	221	39	2	11
	Insurance and compensation	251	12 449	-	-	15
	Total	530	15 172	496	42	158
Public admin & defence	Damage	21	21	21	21	132
	Extra production	307	3 339	430	9	-
	Administration	41	449	58	1	11
	Insurance and compensation	841	12 449	-	-	15
	Total	1 211	16 258	509	31	158

Table 59 continued

Industry	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
Education	Damage	16	16	16	16	132
	Extra production	123	1 771	271	10	-
	Administration	19	267	41	1	11
	Insurance and compensation	727	12 449	-	-	15
	Total	885	14 503	329	28	158
Health & social work	Damage	11	11	11	11	47
	Extra production	187	1 764	341	9	-
	Administration	26	245	47	1	1
	Insurance and compensation	669	12 449	-	-	15
	Total	892	14 468	400	22	63
Energy & water supply	Damage	17	17	17	17	667
	Extra production	238	3 887	422	28	-
	Administration	948	15 515	1 685	113	56
	Insurance and compensation	252	12 449	-	-	15
	Total	1 454	31 867	2 124	158	738

Region	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
South East	Damage	21	21	21	21	132
	Extra production	210	2 516	456	13	-
	Administration	22	269	49	1	11
	Insurance and compensation	434	12 449	-	-	18
	Total	687	15 255	526	35	161
East Anglia	Damage	24	24	24	24	132
	Extra production	223	2 077	362	13	-
	Administration	26	238	41	1	11
	Insurance and compensation	353	12 449	-	-	18
	Total	625	14 788	427	38	161
South West	Damage	21	21	21	21	132
	Extra production	212	1 831	368	13	-
	Administration	57	246	49	2	11
	Insurance and compensation	876	12 449	-	-	18
	Total	1 166	14 546	438	36	161
West Midlands	Damage	25	25	25	25	132
	Extra production	292	2 459	327	15	-
	Administration	34	286	38	2	11
	Insurance and compensation	575	12 449	-	-	18
	Total	926	15 218	390	41	161
East Midlands	Damage	24	24	24	24	132
	Extra production	190	2 250	296	13	-
	Administration	22	261	34	1	11
	Insurance and compensation	286	12 449	-	-	18
	Total	522	14 983	354	39	161
Yorkshire and Humberside	Damage	23	23	23	23	132
	Extra production	225	3 002	346	12	-
	Administration	29	390	45	2	11
	Insurance and compensation	480	12 449	-	-	18
	Total	757	15 863	413	37	161

Table 59 continued

Region	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
North West	Damage	24	24	24	24	132
	Extra production	222	2 268	380	12	-
	Administration	26	264	44	1	11
	Insurance and compensation	481	12 449	-	-	18
	Total	753	15 004	448	37	161
North	Damage	20	20	20	20	132
	Extra production	264	2 532	403	11	-
	Administration	30	288	46	1	6
	Insurance and compensation	471	12 449	-	-	18
	Total	785	15 290	470	32	157
Scotland	Damage	25	25	25	25	132
	Extra production	320	2 363	439	16	-
	Administration	37	271	50	2	11
	Insurance and compensation	558	12 449	-	-	18
	Total	940	15 108	515	43	161
Wales	Damage	21	21	21	21	132
	Extra production	219	1 654	532	18	-
	Administration	25	188	61	2	11
	Insurance and compensation	613	12 449	-	-	18
	Total	879	14 313	614	42	161
London	Damage	20	20	20	20	132
	Extra production	285	3 287	476	17	-
	Administration	35	403	58	2	11
	Insurance and compensation	887	12 449	-	-	18
	Total	1 228	16 160	555	40	161

Occupation	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
Craft & related	Damage	23	23	23	23	132
	Extra production	224	2 447	373	15	-
	Administration	28	308	47	2	11
	Insurance and compensation	419	12 449	-	-	18
	Total	694	15 226	443	39	161
Plant & machine operatives	Damage	29	29	29	29	132
	Extra production	265	1 840	331	12	-
	Administration	35	245	44	1	11
	Insurance and compensation	744	12 449	-	-	18
	Total	1 073	14 562	404	42	161
Other occupations	Damage	28	28	28	28	132
	Extra production	188	1 631	263	10	-
	Administration	30	257	42	1	11
	Insurance and compensation	390	12 449	-	-	18
	Total	635	14 365	332	39	161
Personal & protective services	Damage	22	22	22	22	132
	Extra production	198	2 369	338	11	-
	Administration	26	312	45	1	11
	Insurance and compensation	419	12 449	-	-	18
	Total	665	15 152	405	35	161

Table 59 continued

Occupation	*Cost*	*All injuries (£)*	*Serious or major (£)*	*Other reportable (£)*	*Other lost time (£)*	*Non-injury (£)*
Associate professionals & technical	Damage	19	19	19	19	132
	Extra production	250	2 724	432	15	-
	Administration	29	313	50	2	11
	Insurance and compensation	1 092	12 449	-	-	18
	Total	1 389	15 505	501	36	161
Sales	Damage	21	21	21	21	132
	Extra production	171	1 612	354	14	-
	Administration	25	234	51	2	11
	Insurance and compensation	623	12 449	-	-	18
	Total	840	14 316	426	38	161
Managers & administrators	Damage	16	16	16	16	132
	Extra production	349	4 460	709	21	-
	Administration	23	296	47	-	11
	Insurance and compensation	340	12 449	-	-	18
	Total	728	17 221	772	37	161
Professionals	Damage	16	16	16	16	132
	Extra production	225	3 189	631	15	-
	Administration	22	317	63	1	11
	Insurance and compensation	566	12 449	-	-	18
	Total	830	15 970	709	32	161
Clerical & secretarial	Damage	19	19	19	19	132
	Extra production	169	2 685	293	5	-
	Administration	25	399	44	1	11
	Insurance and compensation	495	12 449	-	-	18
	Total	708	15 552	356	25	161

Table 60 Typical unit costs to society by workplace accident type and by industry, region and occupation

Industry	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
Agriculture	All injuries	924	2 410	381	3 716
	Fatalities	211 074	766 000	5 678	982 752
	Major injuries	3 752	15 929	2 544	22 225
	Other reportable	848	1 550	355	2 752
	Other injuries	20	125	27	172
	Non-injury accidents	-	-	158	158
Manufacturing	All injuries	872	1 641	329	2 841
	Fatalities	276 373	766 000	5 980	1 048 353
	Major injuries	7 177	15 929	3 620	26 726
	Other reportable	1 164	1 550	297	3 011
	Other injuries	40	125	32	197
	Non-injury accidents	-	-	158	158
Distribution & repair	All injuries	409	857	205	1 471
	Fatalities	219 024	766 000	5 678	990 702
	Major injuries	4 402	15 929	2 910	23 240
	Other reportable	784	1 550	350	2 684
	Other injuries	32	125	33	190
	Non-injury accidents	-	-	158	158
Construction	All injuries	677	1 342	214	2 233
	Fatalities	271 409	766 000	7 800	1 045 210
	Major injuries	5 089	15 929	7 218	28 238
	Other reportable	852	1 550	324	2 726
	Other injuries	37	125	19	181
	Non-injury accidents	-	-	62	62
Consumer/leisure	All injuries	1 873	2 102	324	4 299
	Fatalities	234 029	766 000	6 408	1 006 437
	Major injuries	15 226	15 929	4 429	35 584
	Other reportable	3 481	1 550	327	5 358
	Other injuries	121	125	31	277
	Non-injury accidents	-	-	158	158
Hotels & restaurants	All injuries	1 482	775	203	2 461
	Fatalities	177 517	766 000	5 680	949 196
	Major injuries	28 761	15 929	4 109	48 799
	Other reportable	2 224	1 550	257	4 031
	Other injuries	96	125	31	252
	Non-injury accidents	-	-	158	158
Transport & communication	All injuries	699	1 157	264	2 120
	Fatalities	275 236	766 000	5 668	1 046 903
	Major injuries	6 192	15 929	3 135	25 256
	Other reportable	919	1 550	317	2 786
	Other injuries	27	125	18	170
	Non-injury accidents	-	-	70	70
Finance & business	All injuries	512	798	213	1 523
	Fatalities	306 951	766 000	5 681	1 078 632
	Major injuries	4 884	15 929	2 720	23 532
	Other reportable	855	1550	315	2 720
	Other injuries	35	125	34	194
	Non-injury accidents	-	-	158	158
Public admin & defence	All injuries	1 700	1 982	353	4 036
	Fatalities	246 118	766 000	6 171	1 018 289
	Major injuries	18 125	15 929	4 750	38 804
	Other reportable	2 333	1 550	307	4 190
	Other injuries	47	125	27	198
	Non-injury accidents	-	-	158	158

Table 60 continued

Industry	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
Education	All injuries	1 413	1 724	242	3 379
	Fatalities	241 184	766 000	6 680	1 013 863
	Major injuries	20 165	15 929	5 621	41 715
	Other reportable	3 091	1 550	260	4 900
	Other injuries	112	125	25	261
	Non-injury accidents	-	-	158	158
Health & social work	All injuries	1 387	1 641	286	3 315
	Fatalities	-	766 000	6 354	772 354
	Major injuries	13 113	15 929	4 709	33 750
	Other reportable	2 537	1 550	326	4 414
	Other injuries	70	125	19	215
	Non-injury accidents	-	-	63	63
Energy & water supply					
	All injuries	847	1 606	1 111	3 564
	Fatalities	353 194	766 000	5 675	1 124 869
	Major injuries	7 599	15 929	18 422	41 950
	Other reportable	825	1 550	1 888	4 263
	Other injuries	56	125	143	323
	Non-injury accidents	-	-	738	738

Region	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
South East	All injuries	1 229	1 397	239	2 865
	Fatalities	288 925	766 000	6 414	1 061 338
	Major injuries	14 102	15 929	5 047	35 077
	Other reportable	2 558	1550	346	4 453
	Other injuries	72	125	30	227
	Non-injury accidents	-	-	161	161
East Anglia	All injuries	514	1 014	259	1 787
	Fatalities	246 606	766 000	5 670	1 018 277
	Major injuries	4 223	15 929	2 806	22 959
	Other reportable	736	1 550	333	2 619
	Other injuries	26	125	34	186
	Non-injury accidents	-	-	161	161
South West	All injuries	1 587	1 934	353	3 875
	Fatalities	244 523	766 000	6 185	1 016 708
	Major injuries	13 190	15 929	4 042	33 161
	Other reportable	2 648	1 550	317	4 516
	Other injuries	97	125	31	253
	Non-injury accidents	-	-	161	161
West Midlands	All injuries	659	1 182	305	2 146
	Fatalities	249 134	766 000	5 671	1 020 805
	Major injuries	5 116	15 929	2 772	23 817
	Other reportable	681	1 550	258	2 489
	Other injuries	30	125	35	190
	Non-injury accidents	-	-	161	161
East Midlands	All injuries	441	1 041	219	1 701
	Fatalities	243 504	766 000	5 670	1 015 173
	Major injuries	4 567	15 929	2 914	23 411
	Other reportable	601	1 550	269	2 420
	Other injuries	27	125	34	186
	Non-injury accidents	-	-	161	161
Yorkshire and Humberside	All injuries	1 051	1 553	271	2 874
	Fatalities	242 770	766 000	6 057	1 014 827
	Major injuries	13 198	15 929	4 560	33 686
	Other reportable	1 520	1 550	292	3 363
	Other injuries	54	125	32	211
	Non-injury accidents	-	-	161	161

Table 60 continued

Region	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
North West	All injuries	524	1 072	234	1 830
	Fatalities	244 394	766 000	5 670	1 016 065
	Major injuries	4 626	15 929	2 805	23 360
	Other reportable	774	1 550	335	2 660
	Other injuries	24	125	33	183
	Non-injury accidents	-	-	161	161
North	All injuries	610	1 014	267	1 891
	Fatalities	251 714	766 000	5 667	1 023 381
	Major injuries	5 210	15 929	2 809	23 947
	Other reportable	830	1 550	307	2 687
	Other injuries	22	125	28	175
	Non-injury accidents	-	-	157	157
Scotland	All injuries	782	1 445	323	2 551
	Fatalities	249 606	766 000	5 671	1 021 277
	Major injuries	4 858	15 929	2 708	23 495
	Other reportable	903	1 550	335	2 788
	Other injuries	33	125	36	194
	Non-injury accidents	-	-	161	161
Wales	All injuries	1 786	1 798	298	3 882
	Fatalities	284 819	766 000	6 975	1 057 794
	Major injuries	12 857	15 929	6 217	35 003
	Other reportable	4 119	1 550	448	6 117
	Other injuries	144	125	36	304
	Non-injury accidents	-	-	161	161
London	All injuries	2 406	2 168	330	4 903
	Fatalities	314 001	766 000	6 519	1 086 520
	Major injuries	27 163	15 929	5 563	48 656
	Other reportable	3 993	1 550	296	5 779
	Other injuries	144	125	30	296
	Non-injury accidents	-	-	161	161

Occupation	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
Craft & related	All injuries	834	1 352	262	2 448
	Fatalities	236 676	766 000	5 727	1 008 403
	Major injuries	8 072	15 929	3 642	27 643
	Other reportable	1 232	1 550	322	3 104
	Other injuries	49	125	34	207
	Non-injury accidents	-	-	161	161
Plant & machine operatives	All injuries	1 052	1 789	362	3 203
	Fatalities	223 958	766 000	5 593	995 551
	Major injuries	6 707	15 929	3 142	25 778
	Other reportable	1 207	1 550	315	3 072
	Other injuries	43	125	38	207
Other occupations	Non-injury accidents	-	-	161	161
	All injuries	447	1 132	289	1 868
	Fatalities	188 869	766 000	5 374	960 243
	Major injuries	3 504	15 929	2 863	22 296
	Other reportable	565	1 550	324	2 439
Personal & protective services	Other injuries	21	125	38	184
	Non-injury accidents	-	-	161	161
	All injuries	791	1 313	256	2 360
	Fatalities	229 095	766 000	5 949	1 001 044
	Major injuries	8 934	15 929	3 948	28 811
	Other reportable	1 274	1 550	318	3 142
	Other injuries	41	125	32	198
	Non-injury accidents	-	-	161	161

Table 60 continued

Occupation	*Type of accident*	*Lost output (£)*	*Welfare loss (£)*	*Resources cost (£)*	*Total cost (£)*
Associate professionals & technical	All injuries	3 289	2 313	333	5 935
	Fatalities	336 310	766 000	6 907	1 109 217
	Major injuries	35 720	15 929	5 356	57 005
	Other reportable	5 665	1 550	265	7 481
	Other injuries	203	125	27	355
	Non-injury accidents	-	-	161	161
Sales	All injuries	1 226	1 529	270	3 025
	Fatalities	233 735	766 000	6 612	1 006 347
	Major injuries	11 469	15 929	4 716	32 115
	Other reportable	2 516	1 550	337	4 403
	Other injuries	102	125	34	261
	Non-injury accidents	-	-	161	161
Managers & administrators	All injuries	785	897	208	1 890
	Fatalities	414 401	766 000	6 349	1 186 750
	Major injuries	8 761	15 929	2 965	27 654
	Other reportable	1 392	1 550	317	3 260
	Other injuries	41	125	23	189
	Non-injury accidents	-	-	161	161
Professionals	All injuries	2 039	1 549	232	3 819
	Fatalities	398 617	766 000	7 480	1 172 097
	Major injuries	28 466	15 929	6 249	50 643
	Other reportable	5 629	1 550	362	7 542
	Other injuries	131	125	24	280
	Non-injury accidents	-	-	161	161
Clerical & secretarial	All injuries	917	1 281	242	2 441
	Fatalities	-	766 000	6 054	772 054
	Major injuries	14 603	15 929	5 018	35 550
	Other reportable	1 594	1 550	276	3 420
	Other injuries	51	125	27	203
	Non-injury accidents	-	-	161	161

Bibliographic references

1 Alfaro J-L, Chapuis M, and Fabre F(eds), 1994. *Socio-economic cost of road accidents* COST 313 Commission of the European Communities

2 Association of British Insurers (ABI), 1998. 'Analysis of 1997 UK liability market' *Statistical Bulletin* December 1998 ISSN 1362 0517

3 Association of British Insurers (ABI), 1999. 'General business statistics: claims results quarter 1 1999' *Statistical Bulletin* May 1999 ISSN 1357 0692

4 Baum and Niehus, 1993. *Volkswirtschaftliche Ressourcenverluste durch Arbeits- unWegunfälle* Fb 675 Bundesanstalt für Arbeitsschutz, Dortmund

5 Beattie J et al, 1998. 'On the contingent valuation of safety and the safety of contingent valuation: Part 1 - caveat investigator' *Journal of Risk and Uncertainty* **17**

6 Beatson M and Coleman M, 1997. 'International comparisons of the economic costs of work accidents and work-related ill-health' in Mossink J and Licher F (eds) *Costs and benefits of occupational safety and health. Proceedings of the European Conference on Costs and Benefits of Occupational Safety and Health 1997, The Hague, 28-30 May 1997* ISBN 90 6365 160 0

7 Carthy T et al, 1998. *The valuation of benefits of health and safety control. Phase 1 report* prepared by Department of Economics, University of Newcastle-upon-Tyne; Department of Economics, University of York; School of Psychology, University of Wales, Bangor and commissioned by a consortium (HSE/DETR/Home Office/Treasury) led by HSE

8 Carthy T et al, 1999. 'On the contingent valuation of safety and the safety of contingent valuation: Part 2 - the CV/SG 'chained approach'' *Journal of Risk and Uncertainty* **17**

9 CBI, 1998. *Missing out: 1998 absence and labour turnover survey* CBI ISBN 0 85201 553 0

10 CBI, 1997. *Managing absence - in sickness and in health* CBI ISBN 0 85201 545 3

11 Clarke S and Trenell R, 1994. 'United Kingdom labour costs in 1992' *Employment Gazette* September 1994

12 CSO, 1999. National *Accounts* ONS ISBN 0 11 620899 6

13 CSO, 1998. *Economic Trends* May 1998 ISBN 0 11 620979 8

14 Davies N and Teasdale P, 1994. *The costs to the British economy of work-related accidents and work-related ill health* HSE Books ISBN 0 7176 0666 X

15 Davies N et al, 1995. *The economic appraisal of European Union health and safety at work legislation* (unpublished report to the European Commission, December 1995)

16 DETR, 1996. '1995 valuation of road accidents and casualties' *Highways Economics Note* No 1 August

17 DETR, 1997. '1996 valuation of the benefits of prevention of road accidents and casualties' *Highways Economics Note* No 1 August

18 Department of Health, 1995. *Policy appraisal and health. A guide from the Department of Health* Department of Health

19 Department of Health, 1999. Ad-hoc Group on the Economic Appraisal of the Health Effects of Air Pollution *Economic appraisal of the health effects of air pollution* The Stationery Office ISBN 0 11 322272 6

20 Department of Social Security, 1997a. *Family Resources Survey Great Britain 1995-96* The Stationery Office ISBN 0 11 762537 X

21 Department of Social Security, 1997b. *Social Security Statistics 1997* The Stationery Office ISBN 0 11 762535 3

22 EMSU, 1999. *Economic impact: revised data from the self-reported work-related illness survey in 1995 (SWI95)* Information sheet 2/99/EMSU HSE

23 European Agency for Safety and Health at Work, 1999. *Economic impact of occupational safety and health in the Member States of the European Union* European Agency for Safety and Health at Work ISBN 92 828 2634 1

24 Fletcher J A and Douglas H M, 1971. *Total loss control with the industrial environment, a guide for managers and supervisors* Associated Business Programmes ISBN 0 85227 000 3

25 Galasko C et al, 1986. *Long term disability following road traffic accidents* TRRL Research Report 59 Department of Transport, Transport and Road Research Laboratory

26 Hansen M S, 1993. *Arbejdsmiljø og samfundsøkonomi -en metode til konsekvensberegning* Nord 1993:22 Nordisk Ministerråd

27 Heinrich H W, 1980. *Industrial accident prevention: a safety management approach* 5th edition (revised by Petersen D et al) McGraw Hill ISBN 0 07 028061 4

28 H M Treasury, 1997. *Appraisal and evaluation in central government (The Green Book)* The Stationery Office ISBN 0 11 560034 5

29 Hopkin J and Simpson H, 1995. *Valuation of road accidents* Transport Research Laboratory Report 163 Department of Transport ISSN 0968 4107

30 HSE, 1993. *The costs of accidents at work* HSG96 HSE Books 1997 ISBN 0 7176 1343 7 (previous edition published in 1993)

31 HSE, 1997. *Successful health and safety management* HSG65 HSE Books 1997 ISBN 0 7176 1276 7

32 HSE, 1998a. *Self-reported work-related illness in 1995: results from a household survey* HSE Books ISBN 0 7176 1509 X

33 HSE, 1998b. *Health and Safety Statistics 1997/98* HSE Books ISBN 0 7176 1636 3

34 IMF, 1998. *International Financial Statistics Yearbook* International Monetary Fund

35 Ives D and Kemp R, 1992. *Revaluation of non-fatal casualty costs: a review of the literature on relative utility loss methodologies* Contractor report 307 Department of Transport, Transport Research Laboratory ISSN 0266 7045

36 Ives D et al, 1993. *Revaluation of non-fatal casualty costs: a report of the application of the relative utility loss approach* Contractor report 329 Department of Transport, Transport Research Laboratory ISSN 0266 7045

37 Jacobson D and Mottiar, Z, 1997a. *The costs of accidents in the workplace in Northern Ireland - a case study analysis* report commissioned by the Health and Safety Agency (summarised in: Jacobson D and Mottiar, Z, 1997b. *The costs of poor safety in the workplace* Research paper No 21 Dublin City University Business School ISSN 1393 290X)

38 Jones-Lee M et al, 1993. *The value of preventing non-fatal road injuries: the findings of a willingness to pay national sample survey* Contractor report 330 Department of Transport, Transport Research Laboratory ISSN 0266 7045

39 Lund M et al, 1992. *Kostnader ved arbeidsulykker og yrkesrelatert helsesvikt* SINTEF Report STF83 A92017

40 Lunde Jensen P, 1994. 'The costs of occupational accidents and work-related sickness in the Nordic countries' *JANUS* No 18, IV

41 Lunde Jensen P and Henneberg A, 1994. *The costs of work-related diseases and work accidents in Denmark* Report 9/1996 Danish Working Environment Service

42 Measurement and Valuation of Health Group (MVH), January 1995a. *Final report on the modelling of valuation tariffs* University of York (for the Department of Health)

43 Measurement and Valuation of Health Group (MVH), 1995b. *The measurement and valuation of health* Centre for Health Economics, University of York

44 Monnery N, 1999. 'The costs of accidents and work-related ill-health to a cheque clearing department of a financial services organisation' *Safety Science* **31** (1)

45 Netton A and Dennett J, 1997. *Unit costs of health and social care 1997* Personal Services Research Unit (PSSRU) ISBN 0 904938 87 5

46 NERA and CASPAR, 1997. *Valuation of deaths from air pollution* A report for the Department of the Environment, Transport and the Regions September 1997

47 ONS, 1995/96/98. *New Earnings Survey 1995* HMSO ISBN 0 11 620736 1 and *New Earnings Survey 1996* HMSO ISBN 0 11 620818 X and *New Earnings Survey 1998* Part A Table A30.1 The Stationery Office ISBN 1 85774 276 1

48 ONS,1996. *Family spending: A report on the 1995-96 Family Expenditure Survey* HMSO ISBN 0 11 620779 5

49 ONS, 1998a. *Regional trends* **33** ISBN 0 11 621021 4

50 ONS, 1998b. *Social trends* **28** ISBN 0 11 620987 9

51 O'Reilly D et al, 1994. 'The value of road safety, UK research on the valuation of preventing non-fatal injuries *Journal of Transport Economics and Policy* January 1994

52 Pearce D, 1998. *Valuing statistical lives* Background document for PEEPS Programme, RIVM, EFTEC, CSERGE for DGXI, EC mimeo

53 Social Security Departmental Report, 1997. *The Government's expenditure plans 1997-98 to 1999-2000* ISBN 0 10 136132 7

54 Green W, 1996. *Current law, year book 1995* Sweet and Maxwell

55 Williams A, 1997. 'The measurement and valuation of health: a chronicle' in Culyer A J and Maynard A *Being reasonable about the economics of health*

Notes

1 Some work-related illness absence may not relate to recent working conditions.
2 Statistics given in this study were compiled from reports made under RIDDOR 85, which applied until 1995/96. RIDDOR 95 has substantially changed the definition of a major injury and altered the criteria for reportability from 1996/97 on. Note that RIDDOR reports do not include many fatal injuries due to violence at work, so their cost has not been calculated here. On violence at work, see the shortly to be published HSE/Home Office report *Violence at work, findings from the British Crime Survey*.
3 See also subsequent EMSU information sheet 2/99/EMSU revising some of the data.
4 Note that LFS figures in this report refer to 1995/96 (one year only). There may be, therefore, small discrepancies with figures in HSE fact sheets, which currently report LFS total injury and injury rates for the years since 1993/94 as three-year moving averages (see Appendix 1). This means combining the first three surveys (1993/94, 1994/95 and 1995/96) to give estimated rates of injury centred on 1994/95. Then, for each subsequent year, the first survey is dropped from the three-year average, and the most recent survey added. This produces relatively stable trends, reducing year on year fluctuations in results due to errors associated with a sample survey.
5 The figures for days off work in 1995/96 are calculated by obtaining, for each category, the proportion of days off work in 1994/95 over the number of estimated injuries in 1994/95, and applying that proportion to the number of estimated injuries in 1995/96.
6 Note that the number of injuries may be underestimated for the following reasons:
   (a) LFS questionnaire may be answered by proxy by another member of the household - on average, about one third of all LFS interviews are proxy interviews - so there may be a problem of recollection or even knowledge (see Appendix 1 for further detail on LFS);
   (b) the LFS is household based so does not collect information from people in all communal establishments such as members of the armed forces. If these are in higher-risk jobs the grossing up will understate the total; and
   (c) the questions do not allow for more than one injury per person in a year.
   These factors suggest that our estimates of the costs due to injuries will tend to be underestimates.
7 Note that the question on injuries asked for the number of days before returning to work, so the days lost do not include days off after the initial return (eg due to the recurrence of pain, or for treatment), nor the days off taken by those who will never return to work.
8 Some occupational groups include both manual and non-manual workers: 'personal and protective service occupations' (mostly manuals) and 'sales occupations' (mostly non-manuals). The percentages (72% for injuries, and 50% for illness) in the text have been taken assuming that all sales occupation

figures are non-manual ones, and that three quarters of the 'personal and protective service occupations' are manual occupations.

9 All 'unreliable' cases have been excluded. Please see sections 3.2.2 to 3.2.7 of the SWI95 report for a full description of the reliability review.

10 People in employment as described in notes to Tables 9 - 11.

11 Note:
   (a) while the questions about injuries asked about only the most recent spell of absence, the questions about illness asked about the total number of days away from work in the preceding 12 months. We have not attempted to estimate the total number of spells of absence and have assumed simply one per person;
   (b) approximately 339 000 people have more than one work-related illness. In the SWI95 cases could report up to four work-related illnesses and all the illnesses they reported have been included in the tables; and
   (c) these numbers cannot take into account people who died during the year - whether or not as a result of the work-related illness.

12 Note that following the reliability review, all cases in the SWI95 are presumed to be caused by work. All other cases (eg when work made the illness worse) were excluded.

13 Note that some researchers found contrasting results from Heinrich and concluded that minor and major accidental events have different, as opposed to identical causes. See Salminen S 'Fatal and non-fatal occupational accidents: identical versus differential causation' *Safety Science* 1992; Petersen D *Techniques of safety management. A systems approach* (3rd ed) Aloray, Goshen, New York 1989. For a more recent view on accident triangles see also Parkes M J *The accident triangle: a valid tool?* The Health and Safety Practitioner, October 1993.

14 See, for example, Heinrich, 1980, and Fletcher et al, 1971.

15 Work in progress carried out by WS Atkins and commissioned by HSE, Operations Unit (due to be published in 1999/2000). The injury/non-injury ratios derived from the studies are: 1:1.39 for a UK car plant, and 1:1.25 for a town council. However, the car plant case study includes an unusual category: work discomfort reports. These are not injuries in the classic sense but self-reported strains, usually aggravated by ergonomic factors. The ratio above was derived by including this category among the non-injury accidents. If they were included among injury-accidents, as may well be more appropriate, the accident triangle would be inverted.

16 Figures for the UK were published in *Labour Market Trends* June 1996, page 277, Table 6: Stoppages in progress in 1995 by region and industry group, and *Labour Market Trends* June 1997, page 224, Table 6: Stoppages in progress by Government Office Region and industry group. GB figures were provided by the Office for National Statistics (ONS). The ONS reports 410 000 days lost in 1995 and almost 1.3 million days in 1996 due to industrial action.

17 Department of Social Security, 1997a.

18 This income figure is a proxy measure. It is not possible to derive from the FRS average income specifically for the long-term sick and the never return due to injuries. They are a sub-group of the 'unemployed and inactive'.

19 It is not possible using the Family Resources Survey to attribute benefit receipt to events. In particular, some households may have been receiving income-related benefits before the loss of employment, and received a higher award subsequently. Additionally a partner of the injured/ill person may be entitled to one of the in-work income-related benefits, Family Credit and Disability Working Allowance. Such payments have been excluded from the analysis.

20 Note that figures from the FRS refer to a stock built up over several years, while the population from the LFS is a flow. However, the FRS figures broadly show average benefit receipt over the period. Moreover, since people's payments will change over the years for various reasons, this average income figure allows for changes in household characteristics and circumstances.

21 Calculation of net income for the 1995/96 tax year for an injured manufacturing industry worker (gross income minus national insurance and income tax): personal tax allowance (£3525) plus married couple's allowance (£1720) come to £5245 or £20.17 per day. Average daily income (£65.68) minus the tax free allowance comes to £45.50. Therefore net income = £65.68 - (£11.60 x 0.02) - (£54.08 x 0.10) - (12.31 x 0.20) - (£33.20 x 0.25) = £49.28.

22 State pensionable age (SPA) is 60 for women and 65 for men. If workers retired at SPA, then the working years lost due to work-related injuries and illness would be slightly higher: 12.6.

23 Note that in some cases (in particular for the self-employed) serious injury/ illness may lead to consequences as extreme as loss of accommodation or bankruptcy. We have not attempted to estimate these costs.

24 An individual may seek compensation through litigation. As shown in Chapter 4, employers have to take out employers' liability compensation insurance. The Association of British Insurers reports that the cost of settled claims was £738m in 1995, in the UK, of which legal costs and expenses were around 40%. The DSS Compensation Recovery Unit can claw back some benefit payments out of any settlement.

25 An individual may receive an occupational pension on leaving work, possibly enhanced because of injury. There may also be some lump sum compensation. Nevertheless, a pension may be less than if an individual worked to normal retirement age. The value of a state pension can be preserved by claiming Unemployment Benefit or Incapacity Benefit, but its receipt will change entitlement to income-related benefits. After discounting, the sums involved are likely to be not very large and could be ignored.

26 Note that £66.30 is derived by a sample which includes both widows with and without children. Also note that, once widows reach state pensionable age, they are entitled to pension and there is a better-off calculation as to which they receive. However, it is not possible to identify these people in the FRS, so that the payment figure of £66.30 represents a minimum.

27 Widow's reduction in weekly net income following a fatality: 60% of average net earnings = £147.83, minus widow's and out-of-work income-related benefits (£66.30), equals £81.53 per week. Note that average earnings here refer to 1995/96 earnings of an injured manufacturing industry worker, for illustration purposes only, but calculations for the figures in the text and in Tables 18 and 19 are for Britain and are based on earnings assumptions by occupation, as explained in Appendix 4. See Appendix 8 for costs to individuals by industry and region.

28 If workers retired at state pensionable age, then the working years lost due to work-related fatalities would be slightly higher: 21.8.

29 ONS (1996) *Family spending: a report on the 1995-96 Family Expenditure Survey*. We assume a household of two adults. The costs of travel and groceries are estimated using page 71, third quintile group in Table 4.7 which shows weekly expenditure of one man and one woman non-retired households at different levels of income.

30 The total is obtained applying the value used in DETR standard appraisal of £3.15 per hour (1994), uprated to £3.77 using GDP per capita at market prices (1.267) to the number of days lost and assuming an average time spent on cooking and routine housework per day of 1 hour 11 minutes for ill health, and 59 minutes for injury: *Social Trends* 28 1998, Table 13.2 for May 1995, page 216. The difference is due to the different proportions of men and women in the injury and ill-health samples.

31 We do not have information on the time of the year at which people leave the labour market due to their work-related injury/illness. In order to calculate these costs for 1995/96 we have assumed that, on average, they leave at mid-year.

32 Hopkin J and Simpson H, 1995, and Highways Economics Note No 1, DETR.

33 The DETR VPF has three cost elements: human costs, lost output and medical and ambulance costs. The WTP component of the DETR VPF is equal to the

human costs element plus consumption (which is about 80% of lost output).

34 *The valuation of benefits of health and safety control* (forthcoming), commissioned by a consortium (HSE/DETR/Home Office/Treasury), led by HSE. Results from this study suggest that any figure in the range £750 000 to £1 250 000 could be regarded as being broadly acceptable. Since this range encompassed the then (1996) current DETR value of £850 000, the results provided a broad endorsement of the DETR figure and no change in the latter was recommended. The study also elicits relative VPFs in different safety contexts (road and rail transport, and public and domestic fires). One of the findings of this study is that VPFs do not differ substantially in different safety contexts. Some results have already been published. See: Beattie J et al, 1998, Carthy T et al, 1999, and Carthy T et al, 1998.

35 The values for the human cost and lost output components of a road casualty were £529 078 and £282 402, respectively, in June 1995. Values for human cost and lost output in June 1996 were £552 252, and £282 402, respectively. A value for the third quarter 1995 is derived by taking a linear interpolation of the 1995 and 1996 values. The DETR VPF - which is presented in Hopkin and Simpson, 1995, and in the Highways Economics Notes No 1 as the sum of human costs (WTP excluding consumption) plus lost output (which includes consumption) plus medical and support costs - can be derived back adding around 20% of lost output (the excess of gross output over and above consumption) and the medical and support costs to the WTP (£766 000 in 1995/96 prices) component of the DETR VPF.

36 The annual discount rate is regarded as the sum of two components. One component is an estimate of pure time preference for 'utility', explained by people's lesser concern for the marginal utility of future generations, and the chance of some catastrophe which would eliminate any future benefits. The second, larger component, reflects the fact that future populations are expected to have higher incomes, so that a marginal £1 of consumption will bring them less utility. Health and safety costs and benefits might be seen as having a broadly constant utility value over time, regardless of changes in income, so that they could be valued in today's values and discounted at the pure time preference for utility. See pages 84-85, *Appraisal and evaluation in central government* (The Green Book), HM Treasury, 1997, for more detail on this.

37 Jones-Lee M et al, 1993.

38 Ives D and Kemp R, 1992 and Ives D et al, 1993.

39 As explained in O'Reilly et al, 1994, the research of Ives et al, 1992, and Jones-Lee et al, 1993, has formed the basis of the Department of Transport's (DoT, now DETR) revision of its values for the prevention of non-fatal road injuries. In view, however, of the very small non-random sample and essentially exploratory nature of Ives et al, 1992, revised DoT values have been based only on the national sample survey standard gamble results (in Jones-Lee et al, 1993).

40 Loss of reputation of the firm with the local community will harm the firm financially if, for example, it results in the local authority refusing planning approval. Loss of goodwill with the workforce may harm the firm financially if productivity falls as a result, if industrial relations deteriorate, or if recruitment and retention difficulties result. A firm may respond to this by paying higher wages. A number of studies (see for example Thaler and Rosen 'The value of saving a life' in Terleckji N E (ed) *Household production and consumption* NBER 1975; and a survey article by Rosen 'The theory of equalizing differences' in Ashenfelter O and Layard P R G (eds) *Handbook in labour economics* Elsevier Science Publishers 1986) have found that in industries where the risk of fatal injuries and premature death due to occupational disease is high, employers do have to pay a 'wage risk premium'. Finally, firms with a poor health and safety record may find that this diminishes the perception their customers have of the quality of their products. We have not attempted in this study to quantify any of these effects.

41 Accident Prevention Policy Unit (now Operations Unit), HSE.
42 Achieving higher productivity may require higher wages and imply a renegotiation of the 'wage effort bargain'.
43 Note that the assumption that output is maintained means that there are no 'knock-on effects' and hence no costs for other employers doing business with the absentee's organisation. Similarly, we do not take account of the disruption to the work of colleagues and managers. We assume that any output lost as a result is made up at no extra financial cost to the employer.
44 A similar outcome would result from the option (a) (accepting a loss of output): the traditional economic model of the firm is one where there are diminishing returns to scale and rising marginal cost. A firm in a perfectly competitive market will hire workers up to the point where the marginal cost of labour (wage) is equal to the marginal revenue product of labour. In fact, if the marginal revenue product of labour were higher (lower) than the marginal cost of labour, then it would hire (fire) more workers because these workers would generate benefit (loss) for the firm. If a person is absent, the last (marginal) unit of output is not produced but its value would be equal to the wage saved. Thus, the net cost to the employer is the amount paid in sick pay.
45 We consider this an average - where costs of adjustment are high and absentees receive full pay, total costs will be high; in other cases there may even be savings. For an employer the net cost is equal to payment to the absentee. For a self-employed person off work there is a loss of income partly offset by state benefits. The small difference in amount and the numbers involved mean it is not worthwhile disaggregating for this exercise.
46 See Clarke S et al, 1994, page 313.
47 If taking the average daily earnings for a full-time injured manufacturing industry worker (£65.68), for example, the daily cost to the employer of employing the worker would be around £84.73 (29% mark-up for manufacturing).
48 Note that we have treated absence due to illness in the same way as absence due to injury, but in some cases the costs of absence due to illness could be less than for injuries, because some absence may be expected and can therefore be planned for. However, the average number of days lost for those people who do have time off resulting from work-related ill health is greater than for victims of injuries, and may therefore involve greater disruption.
49 Average hourly wage for an accounts and wage clerk in 1995/96 (NES) is £6.70, which becomes £8.50 when including non-wage labour costs. This gives £4.25 for half an hour's work.
50 This is possibly an underestimate, as it does not take into account any deaths of employees from illness caused by work (recall that we have assumed very long lags between cause and effect for fatalities due to work-related ill health).
51 This means there is no reorganisation and that premature retirement on health grounds is not being used as an alternative to redundancy.
52 Labour turnover estimate is based on surveys of employers' recruitment practices over several years. Personal communication from Employment Relations, DTI.
53 There may be a period of time before a replacement is found and takes up post during which employers will have to make alternative temporary arrangements. As with absences we assume that these cost no more than paying a normal wage and, as there is no sick pay, there are no costs above normal production costs for that period.
54 Unpreventable accidents were monitored in all five APAU case studies. In the oil platform, construction site and creamery, they were excluded. In the other two studies, there were some inconsistencies that prevented rigorous exclusion. However, the accidents in doubt were all smaller non-injury accidents and represented only a small part of the total costs. This should not affect our estimate of total costs because:
    (a) the events that might arguably be preventable were low cost so their exclusion would raise the average costs; and

(b) we have chosen a point at the lower end of the range.

55 The APAU case studies show 87 injury and non-injury accidents per employee/year in construction, compared with an average of 8 in the other 4 case studies.

56 Note that injuries in the oil and gas extraction industry are likely to have happened in the continental shelf, but LFS allocates them according to the region of residence. Fatalities reported under RIDDOR, on the other hand, are recorded where they occurred, ie the continental shelf ('other (offshore)', in our regional tables).

57 The average cost of damage from non-injury accidents in the APAU case studies was as follows: £27.50 in the construction site, £44.30 in the transport company, £46.70 in the hospital, and £237.20 in the creamery (in 1995/96 prices).

58 Since 1995/96 the level of Statutory Sick Pay has risen by just under 6% (1995/96 to 1998) while wages have risen by over 11% (all full-time employees, 1995/96 to 1998). The proportion of sick pay paid for by employers will therefore have risen slightly from 75%. This means that the savings on payments to absentees to offset the costs to maintain output will probably be slightly smaller. Thus, while other items discussed in this study are likely to have increased more or less in line with the rate of inflation, the cost of covering for absence will have increased by more than the rate of inflation.

59 We estimate figures for Great Britain by deducting about 2.5% from UK figures, which include Northern Ireland.

60 Intentional acts, such as arson, are regarded as planned. Arson is therefore excluded from the calculations (see definition of work accident in Chapter 1).

61 Employers' liability insurance costs are apportioned to the categories by breakdown according to the number of people forced to leave the labour force and the number of serious or major occupational injuries and illnesses (those involving absence of over two months) in each category. There is a large variation between the amounts of compensation claims awarded for personal injuries (see Sweet et al, 1996). They depend on the type of injury/illness, but also on other factors. It seems reasonable to assume that there is a 9:1 ratio between awards for injuries/illness leading to permanent incapacity, and other serious or major injuries. Fire and business interruption insurance costs are apportioned by categories in each breakdown according to the number of non-injury accidental events.

62 ABI, 1998. Note that ABI statistics, believed to represent in excess of 90% of the market, do not include Lloyds.

63 People in small establishments are less likely to take time off and tend to return earlier. Reasons for this are unclear; it may reflect a stronger sense of obligation to the firm and a recognition that the disruption caused by their absence may be greater than in a large organisation, and/or less generous sick pay. Work from the Operations Unit (OU) of HSE shows that injured self-employed people generally take less time off than injured employees; and the self-employed person represents the smallest size of business. The OU work also shows that the risks of a fatal and or serious injury in small manufacturing workplaces are double those in larger workplaces. However, the rate of less serious injuries, mostly defined as injury leading to more than three days absence from work, is lower in small workplaces, and lowest in the smallest workplaces. The different risk patterns for serious and less serious injuries suggest an influence of culture about absence.

64 CSO, 1999: Table 30 shows gross trading profits for UK (before providing for depreciation and stock appreciation) of industrial and commercial companies excluding banks and other financial institutions, to be almost £97 billion in 1995/96.

65 Using, for illustration purposes, the average pay for an injured worker in the manufacturing industry, then the value of lost output is: £84.73 per day, that is, gross daily wage of £65.68 including overtime, bonuses, shift pay, etc, plus 29% for non-wage labour costs.

66 Costs per person differ according to the average earnings used in each breakdown (see Appendix 4). For illustration purposes, in the manufacturing industry, taking an average gross weekly pay for an injured worker of £328.39 from the NES, gives an annual wage of about £17 076. Adding on 29% for non-wage labour costs, gives total annual potential output to be about £22 000 per person. We uprate this by 1.8% per year in line with historical real earnings growth and discount at 6%. This gives an average estimated net present value of around £213 700 per injured person working in the manufacturing industry, over 12 years.

67 A higher estimate would be produced if, rather than assuming diminishing returns to scale, we were to assume constant returns to scale and use average output. Output per worker in 1995/96 was about £25 000. Loss over 12 and 21 years would then be about £240 000 and £360 000 per worker - with total loss from injury (including fatalities) and illness just under £7 billion.

68 Social Security Departmental Report, 1997: Figure 12 shows average weekly administration cost per beneficiary in 1995/96, eg Incapacity Benefit £4.15, Income Support £5.05, and Housing Benefit £1.20. Claimants could receive several benefits, so we assume an average of £6.50.

69 Netton et al, 1997.

70 Another way of looking at this expenditure is to consider the annual cost of treatment for the stock of people out of the labour force with a work-related illness (it does not matter whether such illness was the cause of their leaving the labour market). For about 408 000 people this comes to £47 million (out of an NHS budget in 1995/96 of £39.2 billion in the UK).

71 UK GDP in 1995/96 at market prices was £722 333 million (ONS, National Accounts section, September 1999). The equivalent for Great Britain is not available, but regional statistics show that Northern Ireland GDP at factor cost was 2.30% and 2.25% of UK GDP at factor cost in 1995 and 1996, respectively (ONS, Regional Reporting section, September 1999). This gives an estimated GDP for Great Britain of £706 billion in 1995/96.

72 This chapter draws heavily on a paper presented at the European Conference on Costs and Benefits of Occupational Safety and Health, The Hague, May 1997, by M Beatson and M Coleman, former HSE economists.

73 See Davies et al, 1995, and also Lunde Jensen, 1994, and Lunde Jensen et al, 1994.

74 Lunde Jensen P, 1994.

75 Lunde Jensen P, 1994.

76 Lunde Jensen P and Henneberg A, 1994.

77 See Lund et al, 1992. The methodology adopted was similar to Hansen M S, 1993; for a review of the differences, see Davies et al, 1995.

78 Hansen M S, 1993.

79 Alfaro J L et al, 1994.

80 Baum and Niehus, 1993.

81 European Agency for Safety and Health at Work, 1999.

82 See HSE, 1998b, for a background to the sources and qualifications on comparative statistics.

83 This section is based on information published in HSE Books, 1998a, and HSE Books, 1998b.

84 Manual handling is included because of its repetitive (rather than one-off) nature.

85 The exclusion of non-manual handling injuries that occurred more than 12 months before results in excluding an estimated 280 000 people from the total. A third of these were suffering from 'trauma' (which covers the long-term consequences of injury other than those caused by a straightforward workplace injury, eg attacks) and the majority of other illnesses were musculoskeletal disorders. See Table 7 in the SWI95 for a full breakdown of these illnesses by disease group.

86 Note that Davies and Teasdale, 1994, assumes that when GP consultations are combined with outpatient visits, only half of the GP visits result in a

prescription. However, Netton and Dennett, 1997, report 2.1 as the number of prescriptions per consultation, which probably reflects repeat prescriptions arising from initial consultations. We reckon that one prescription per GP consultation (with and without outpatient visits) is probably a good approximation.

87 Average of April 95, in New Earnings Survey 1995, and April 1996, in New Earnings Survey 1996.

88 A weighted average gross weekly pay for full-time manual males and full-time manual females was calculated using the ratio 0.57 male: 0.43 female from SWI95. Another weighted average was calculated for full-time non-manual males and full-time non-manual females, also using the 0.57 male: 0.43 female ratio. A weighted average of these two weighted averages was then calculated using the ratio: 0.46 manual: 0.54 non-manual from the SWI95 sample. For injury, the same method was used as for illness with the exception that the manual: non-manual ratio was 0.64 manual: 0.36 non-manual workers (LFS), and the male: female ratio for the LFS sample was 0.70 male: 0.30 female.

89 New Earnings Survey 1995 Part A and New Earnings Survey 1996 Part A. Average gross weekly earnings for an injured manufacturing industry worker in 1995/96 (£328.39) is the weighted average of April 1995 average gross weekly earnings and April 1996 average gross weekly earnings.

90 The basic wage is calculated by multiplying the basic hourly earnings of full-time employees by the average number of hours (both excluding overtime).

91 DSS (1997) *Social Security Statistics 1997*, page 175. Incapacity Benefit for a person with an adult dependant was (£44.40 + £27.50) = £71.70 (Short-Term Lower Rate), (£52.50 + £27.50) = £80.00 (Short-Term Higher Rate), (£58.85 + £35.25) = £94.10 (Long-Term Rate). This is assumed to be an average; for people without dependants the loss will be greater, while for those with children it will be less.

92 In 1995 an individual had an annual tax free allowance of £3525, plus a married couple tax allowance of £1720. Income tax was payable at 20% on the next £3200 and 25% on the remaining income. Someone earning the average wage for an injured manufacturing industry worker as in the example (or in all of the other breakdowns) would not have earned enough to have to pay the higher rate of income tax (40%). In addition to income tax it was necessary to pay 2% National Insurance on the first £3016 of income and 10% on the balance (up to £22 880 when the marginal rate was zero).

93 People who do not receive payments from their employer and are unable to get SSP are able to claim Incapacity Benefit, short-term lower rate for the first 28 weeks, if they satisfy the National Insurance contributions conditions; after 28 weeks the higher rate IB is paid. Note that even for those on full basic pay there could be a loss of income where they would usually receive overtime and bonus payments.

94 The average earnings figures used for the 'Other' region in our regional breakdown are the average of all the other regions (see Appendix 4).

95 See Carthy T et al, 1998.

96 See Jones-Lee M et al, 1993.

97 See Hopkin J et al, 1995.

98 Injury states were originally classified (and later revised) by Galasko C et al, 1986. See also Jones-Lee M et al, 1993.

99 Galasko C et al, 1986.

100 See footnote 95.

101 See Hopkin J et al, 1995, page 8.

102 Jones-Lee M et al, 1993.

103 These are 'more-or-less direct' methods, because valuations are obtained in stages.

104 TTO techniques, as well as standard gamble, are often interviewer-based and demand that expressions of preference involve an element of choice.

105 Ives D and Kemp R, 1993.

106 The main EuroQol EQ5D scale is a TTO (time trade-off) 10-year duration tariff

of means from the whole population. The EQ5D scale for states of ill health of one year duration used here is a TTO tariff of means which is derived by transforming the visual analogue scale (VAS) data, since TTO valuations could not be elicited for short durations. The VAS method is the graphical form of category rating, which is an indirect method. It is often used in postal surveys. On this see: Measurement and Valuation of Health Group (MVH), 1995a, and MVH, 1995b; and Williams A, 1997; and Department of Health, 1999.

107 Pearce D, 1998.

108 See NERA and CASPAR, 1997.

109 Department of Health, 1995.

110 Department of Health, 1999.

111 DSS (1997) *Social Security Statistics 1997*, for details of Incapacity Benefit (p155), Severe Disablement Benefit (p225), Income Support (p21), Housing Benefit (p47), Council Tax Benefit (p83), Widow's Benefit (p271) and Disability Living Allowance (p191).

Acronyms and abbreviations

ABI	Association of British Insurers
APAU	Accident Prevention Advisory Unit
CBI	Confederation of British Industry
DETR	Department of the Environment, Transport and the Regions
DoH	Department of Health
DSS	Department of Social Security
DTI	Department of Trade and Industry
EL	Employer's liability
EMSU	Epidemiology and Medical Statistics Unit
FRS	Family Resources Survey
GDP	Gross domestic product
GNI	Gross national income
GNP	Gross national product
GP	General practitioner
HCHS	Hospital and Community Health Services
HO	Home Office
IB	Incapacity Benefit
IIDB	Industrial Injuries Disablement Benefit
IPD	Institute for Personnel Development

ISS	Industrial Injuries Scheme
LA	Local authority
LCS	Labour Cost Survey
LFS	Labour Force Survey
LTR	Long-term rate
MVH	Measurement and Valuation of Health Group
NES	New Earnings Survey
NGLs	Natural gas liquids
NHS	National Health Service
NPV	Net present value
ONS	Office for National Statistics
OU	Operations Unit
QALYs	Quality-adjusted life years
QWB	Quality of well-being
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RTA	Road traffic accident
SDA	Severe Disablement Allowance
SPA	State pensionable age
SSP	Statutory Sick Pay
STHR	Short-term higher rate
STLR	Short-term lower rate
SWI95	Self-reported Work-related Illness in 1995
SWORD	Surveillance of Work-Related and Respiratory Disease
TTO	Time trade-off
UKCS	United Kingdom Continental Shelf
VAS	Visual analogue scale
VPF	Value of preventing a fatality
WTA	Willingness to accept
WTP	Willingness to pay

Further information

HSE priced and free publications can be viewed online or ordered from www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications are also available from bookshops.

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055 Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

Published by HSE 03/10