# Costs to Britain of workplace fatalities and self-reported injuries and ill health, 2012/13

## Contents

# Summary

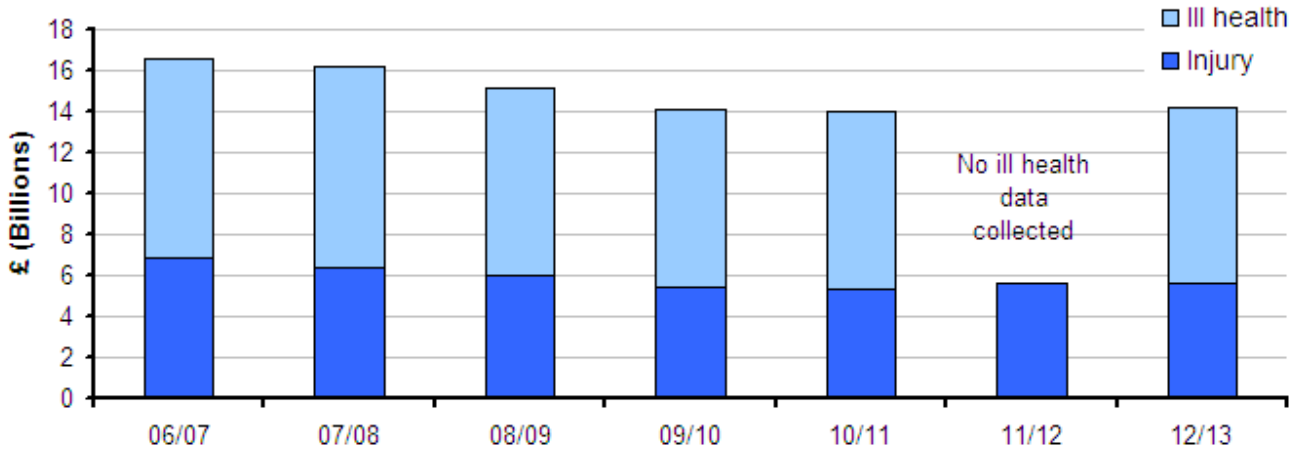
Workplace injury and work-related ill health impose costs on employers (e.g. sick pay), on individuals (e.g. the human costs of pain, grief and suffering) and on the Government (e.g. health care expenditure). This report presents cost estimates for 2012/13 of injuries and new cases of ill health complaints in Great Britain associated with current working conditions.

New estimates show that injuries and new cases of ill health in workers in Great Britain resulting largely from current working conditions* cost society an estimated **£14.2 billion** in 2012/13 (expressed in 2012 prices). This total has fallen since 2006/07, reflecting the fall in injury and illness numbers since then. The total cost shows signs of levelling off in recent years.

- Somewhat over half of the total cost in 2012/13 fell on individuals whilst the remainder was shared between employers and Government.
- Financial costs, such as those associated with lost productivity or healthcare, represents £6.0 billion of the total cost in 2012/13; the remaining £8.2 billion represents the monetary value given to individuals' 'pain, grief and suffering'.
- New cases of workplace illness account for around £8.6 billion of the total cost in 2012/13; workplace injury (including fatalities) around £5.6 billion.
- Between 2006/07 and 2012/13 the estimated total cost fell by around £2.3 billion (£14.2 billion in 2012/13 compared with £16.5 billion in 2006/07, all in 2012 prices). The total cost shows signs of levelling off in recent years.

* Further work continues to estimate the cost of work-related conditions, such as cancer, caused by historic conditions.

**Figure 1: Cost to Britain of workplace injury and new cases of work-related ill health, 2006/07–2012/13 (2012 prices)**




Source: HSE Cost Model

**Note:**

(i) 95% confidence interval on average +/- 9% on the total.

(ii) The cost estimates for 2006/07 to 2011/12 that were published in 2013 have been updated to express costs in 2012 prices. In addition, a number of small changes have been introduced to the cost model, which has had a small impact on previous cost estimates. Please see the revision log at www.hse.gov.uk/statistics/about/revisions/revision-log.htm for more information.

(iii) Each year's cost estimate is based on a 3-year average annual estimate of the number of illness and injury cases (for example 2012/13 cost is based on the average annual number of injury cases for 2011/12-2013/14 and new illness cases for 2010/11, 2011/12, 2013/14 – ill health data was not collected in 2012/13).

Table 1 presents the cost estimates for 2012/13 separated out by the three distinct groups to whom the costs fall, namely individuals, employers and Government.

**Table 1: Total Costs to Britain of workplace injury and new cases of work-related ill health by cost bearer, 2012/13 (2012 prices)**

| Cost Bearer | Estimated Cost (£billions, 2012 prices) | | | % of total cost |
|---|---|---|---|---|
| | central | 95% Confidence Interval | | |
| | | lower | upper | |
| Individuals | **8.1** | 7.3 | 9.0 | 57% |
| Employer | **2.9** | 2.8 | 3.0 | 20% |
| Government | **3.2** | 2.7 | 3.8 | 23% |
| **Total cost** | **14.2** | 12.9 | 15.6 | 100% |
| | Source: HSE Cost model | | | |

# Introduction

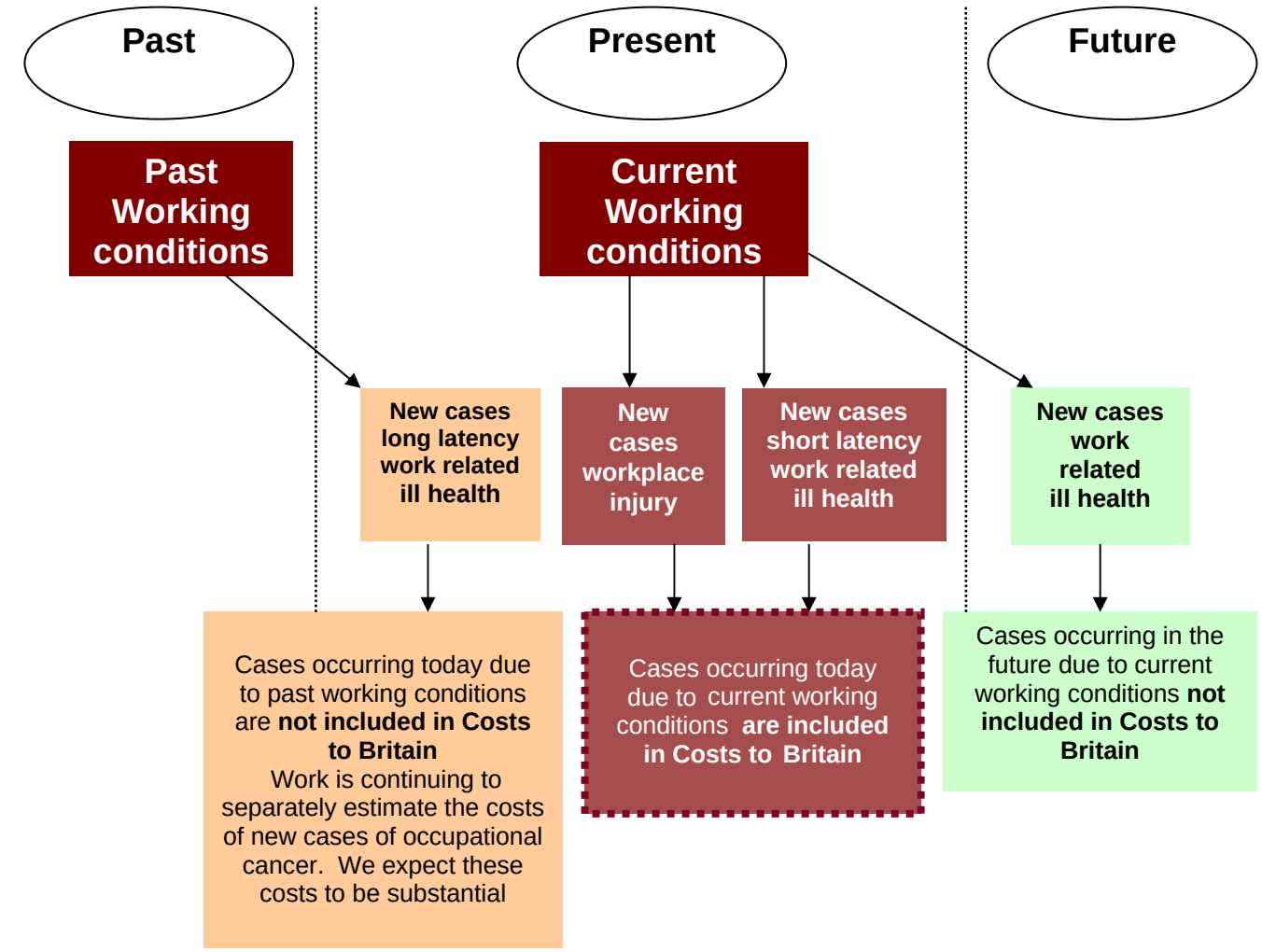
This report presents latest estimates of the ***'Costs to Britain of workplace injuries and ill health'***.

Workplace injuries and work-related ill health impose costs on employers (e.g. sick pay), on individuals (e.g. the human costs of pain, grief and suffering) and on the Government (e.g. health care expenditure). Estimating the value of these costs allows us to:

- estimate the overall scale of health and safety failings, taking into account the impacts that fall on different groups (individuals, employers and government) (see 'Methods' section);
- provide an overall indicator of movements in the performance of the health and safety system;
- provide unit costs (or 'appraisal values') for cases of workplace injuries and work-related ill health for use in regulatory impact assessments and other economic appraisals, which can be compared with the costs of implementing the proposed health and safety interventions.[1]

These 'Costs to Britain' estimates ***aim to reflect the costs of workplace illness and injury occurring today arising from current working conditions and working practices.*** They therefore do not include costs of ill health cases occurring in the current year caused by past working conditions. This excludes especially fatal occupational illness cases (such as cancer), since by and large, these cases will result from past working conditions.

**Figure 2: Workplace injury and ill health cases included in the 'Costs to Britain'**




[1] It is important to note that the cost estimates presented in this report do not include the costs associated with implementing measures to improve health and safety standards and complying with health and safety regulations.

Previously published estimates for 2006/07 to 2011/12 have been revised to express costs in 2012 prices. In addition a number of small changes have been introduced to the cost model, resulting in a small impact on previous cost estimates. All comparisons with earlier years' costs data should be made using the revised cost estimates. Please see the revision log at www.hse.gov.uk/statistics/about/revisions/revision-log.htm for more information on the changes.

# Methods

The general principle for estimating costs is to apply the formula:

**Cost = Quantity x Unit price**

Costs are estimated separately for different cost components and for different cost bearers using this basic formula.

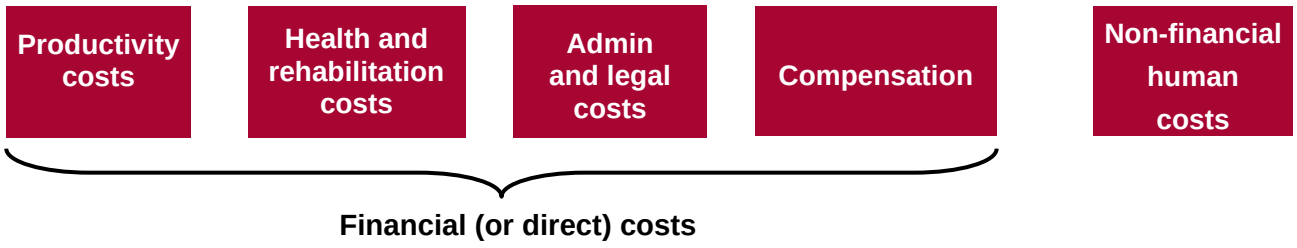
Information on 'quantity' is taken from two sources: statutory reports under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) for estimates of fatal injuries; and survey estimates from the Labour Force Survey of self-reports of non-fatal injury and new cases of work-related ill health. This data is discussed in more detail in the section 'Number of workplace injury and work-related ill health cases'.

The 'Costs to Britain' include estimates of both:

- ***financial (or direct) costs incurred*** - either in terms of payments that have to be made or income/production that is lost.
- ***monetary valuation on the impact on quality of life*** of affected workers (referred to as the non-financial costs) - often the greatest impact of illness and injury is on quality of life, including lost life. It is standard practice in the economics of public policy to place a monetary value on non-financial costs where possible.

Costs are structured into five broad categories, as shown in Figure 3 below. See Annex 1 for a details of the composition of these cost categories, including breakdown by cost bearer.

**Figure 3 – Cost categories**




Information on financial costs needed to quantify the different cost categories comes from a wide range of sources including ONS surveys on earnings, NHS data on treatment costs and DWP figures on benefit rates. Some cost elements are limited by availability of robust data to quantify the impact, for example 'presenteeism', whereby a worker's health impairment results reduced productivity while present at work. A lack of robust data means that we cannot quantify this cost with any degree of accuracy at this point in time and so it is currently omitted from the cost model.

Non-financial costs are based on the value that individuals would be willing to pay for reduced risk of death or to avoid reductions in quality of life which result from injury[2]. It is therefore a measure of the economic value that people place on risk reduction and is over and above any direct financial costs that they incur.

The cost model uses a well-established value, used by other Government Departments[3], to estimate society's willingness to pay for avoided risk of fatality. However, this value reflects what people would pay to

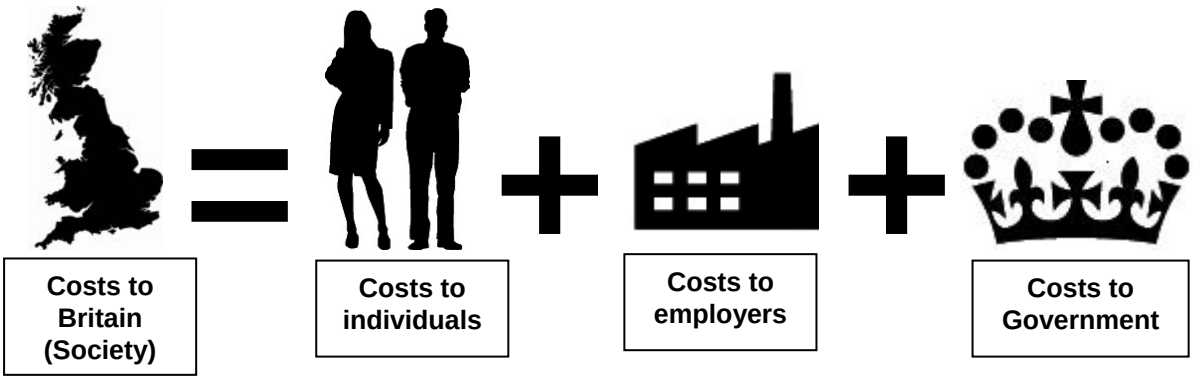
[2] As discussed in the detailed methodology report, estimates of willingness to pay used in the model are based upon injuries, which are mapped to work-related illnesses using time off work as a proxy for severity. See Appendix 3 of HSE Research Report RR897 for more information at www.hse.gov.uk/research/rrhtm/rr897.htm

[3] See Department of Transport's DfT Webtag databook May 2014, A4.1.1 www.gov.uk/government/publications/webtag-tag-data-book-may-2014 which provides the origin of value of prevented fatalities.

reduce risk, not what they would accept in compensation for suffering. It can never fully capture the losses to victims and their families of actual work-related fatalities. A full description of the method used in the cost model to calculate non-financial values is provided in Annex 3 of the detailed methodology report[4]

***Costs for the different cost components fall to three distinct groups*** (individuals, employers and government)….

***… and combining the costs to these three groups gives an estimate of the total cost to society, sometimes referred to as the 'Costs to Britain'***




In some cases, a cost to one group is an equal and opposite benefit for another group. For example sick pay represents a cost to the employer but is an equal and opposite benefit to the individual who receives it. Total costs to Britain, estimated by summing across the three groups are net of transfers between one group and another. The Cost Structure summary at Annex 1 explicitly shows the money inflows and outflows included in the HSE Cost Model and provides a brief narrative on each; the actual money values for workplace injuries and illness in 2012/13 relating to these inflows and outflows are shown in Annex 2.

Table 2 summarises to whom the various cost components fall.

**Table 2: Summary of cost components by cost bearer**

| | ***Cost bearer*** | | |
|---|---|---|---|
| ***Cost Category*** | ***Individuals*** | ***Employers*** | ***Government*** |
| Productivity Costs | ✓ | ✓ | ✓ |
| Health and rehabilitation costs | ✓ | ✓ | ✓ |
| Admin and legal costs | ✓ | ✓ | ✓ |
| Compensation | ✓ | ✓ | |
| Non-financial human costs | ✓ | | |

[4] See www.hse.gov.uk/research/rrhtm/rr897.htm

# Number of workplace injury and work-related illness cases

The ***number of annual cases*** of workplace injury and work-related illness are important drivers of the total cost estimates. In addition to this, the associated ***time taken off work*** from these cases is important in determining costs. Some direct costs, such as lost income and production are directly related to lost working time. Other costs, such as healthcare costs and non-financial human costs, use the time taken off work to infer severity.

The 2012/13 cost estimates presented in this report are based on average annual number of workplace injury for the three years 2011/12 to 2013/14 and average annual number of newly occurring work-related illness cases for the three years 2010/11, 2011/12, 2013/14[5].

## Number of workplace injury cases

**622,000 workplace injuries annually**
**Annual average 2011/12-2013/14**

**Source: RIDDOR (fatal injuries); Labour Force Survey (non-fatal injuries)**

**Figure 4: Breakdown of injury incidence by injury severity category, annual average 2011/12-2013/14**


[5] Estimates of non-fatal injury and work-related illness are based on self-reports from the Labour Force Survey (LFS). In 2011/12 no work-related ill health data was collected on the LFS, hence a slightly different time period is used for the annual average 2012/13 estimate for work-related illness compared to non-fatal injury. From 2013/14, work-related ill health data has returned to annual data collection in the LFS.

## Number of new cases of work-related illness

**494,000 new cases of work-related illness* annually in workers**

**Annual average 2010/11, 2011/12, 2013/14**

**Source: Labour Force Survey**

* To best capture illness from current working conditions, the illness estimate is based on new cases to those who worked in last 12 months.

**Figure 5: New cases of work-related illness by severity category, annual average 2010/11, 2011/12 and 2013/14**


## Time off work resulting from workplace injury or work-related illness

**Time taken off work due to a work-related illness is on average greater than the time taken off due to a workplace injury**

**Source: HSE Cost Model**

**Figure 6: Percentage breakdown of workplace injury and new cases or work-related illness by length of time off work**


Source: Labour Force Survey

## ‘Never Returns’

***Workers who permanently leave the labour market as a result of their workplace injury or work-related illness*** are an important sub-set of workplace injury and illness cases, since they incur large costs. Their withdrawal from the labour market will result in lost income and production for the remainder of their working lives. Further, we expect these injuries and illnesses will have a larger impact on quality of life as they are likely to be more severe, and we would expect these cases to incur greater healthcare costs.

**An estimated 16,000 workers withdraw permanently from the labour market annually as a result of a workplace injury or work-related illness**

**Annual average 2009/10 to 2011/12**

**Source: Labour Force Survey**

In order to estimate separately costs of injury and ill health, we need to estimate which of these ‘never returns’ arise from workplace injuries and which arise from work-related ill health. The Labour Force Survey suggests that the majority of never returns are due to cases of work-related ill health and so within the model a greater proportion of ‘never returns’ cases are allocated as ‘ill health’ than ‘injury’.

## Uncertainty in estimated number of annual cases

Non-fatal workplace injury and ill health estimates (including never returns) are based on the Labour Force Survey[6], a sample household survey. Like all sample survey estimates, these estimates of injury and illness are subject to uncertainty arising from the sampling process – if a different sample of households had been selected it would be highly unlikely we would achieve exactly the same estimate. However, sampling theory allows us to calculate a range of values for which we are confident the true result lies. This range is known as the ‘confidence interval’. In line with standard practice, the HSE cost model considers the 95% confidence interval around the injury and illness estimates when estimating costs – this produces a corresponding confidence interval around the costs estimates themselves.

The confidence interval around the costs estimate is very important when we want to make comparisons either between different groups or over time. It is not sufficient to just compare the point (or central) estimate, as this takes no account of error arising from the sampling process. Instead comparisons have to be based on the confidence interval. An approximate test to establish if two independent sample estimates are different is to check that the confidence intervals do not overlap (although a more exact test is used for comparisons over time made within this report).

[6] Labour Force Survey Performance and Quality Monitoring Reports

# Results

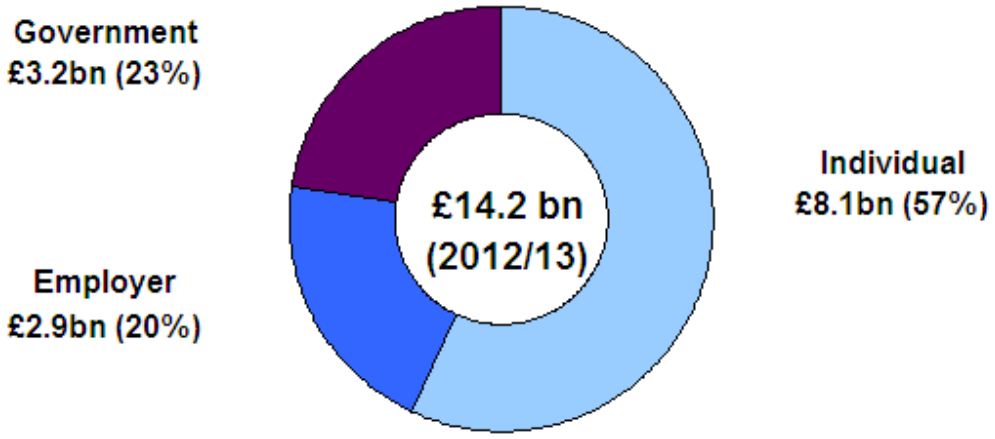
## Cost by cost bearer

**Injuries and ill health in workers in Great Britain resulting largely from current working conditions cost an estimated £14.2 billion in 2012/13 (2012 prices)**

**Source: HSE Cost Model**

Somewhat over half of the total cost in 2012/13 fell on individuals whilst the remainder was shared between employers and government

**Figure 7: Costs to Britain of workplace injury and work-related ill health by cost bearer 2012/13 (in 2012 prices)**




Source: HSE cost model

Whilst the estimates in Figure 7 above are the best estimates of the annual costs from workplace injuries and work-related ill health in 2012/13, they are subject to uncertainty due to both sampling error in the estimated annual number of illness, injury and 'never returns' cases; and the underpinning assumptions used to estimate costs.

As described in the previous section ('Uncertainty in estimated number of sample cases'), the cost model accounts for sampling error uncertainty by estimating 95% confidence intervals to provide upper and lower estimates, which are presented alongside central estimates. We do not formally account for uncertainty associated with the underlying assumptions used in the model, given the difficulty in quantifying this. Annex 4 sets out proposed work to refine the cost model and underlying assumptions to reduce inherent uncertainty.

In Table 3, the estimated costs by cost bearer are presented along with their 95% confidence interval.

**Table 3: Costs to Britain of workplace injury and new cases of work-related ill health by cost bearer 2012/13 (in 2012 prices)**

| Cost bearer | Estimated costs (£ millions) | | |
|---|---|---|---|
| | central | 95% Confidence Intervals | |
| | | lower | upper |
| Individuals | **8,117** | 7,284 | 8,952 |
| Employer | **2,905** | 2,811 | 2,998 |
| Government | **3,216** | 2,674 | 3,758 |
| **Total cost** | **14,237** | 12,891 | 15,586 |

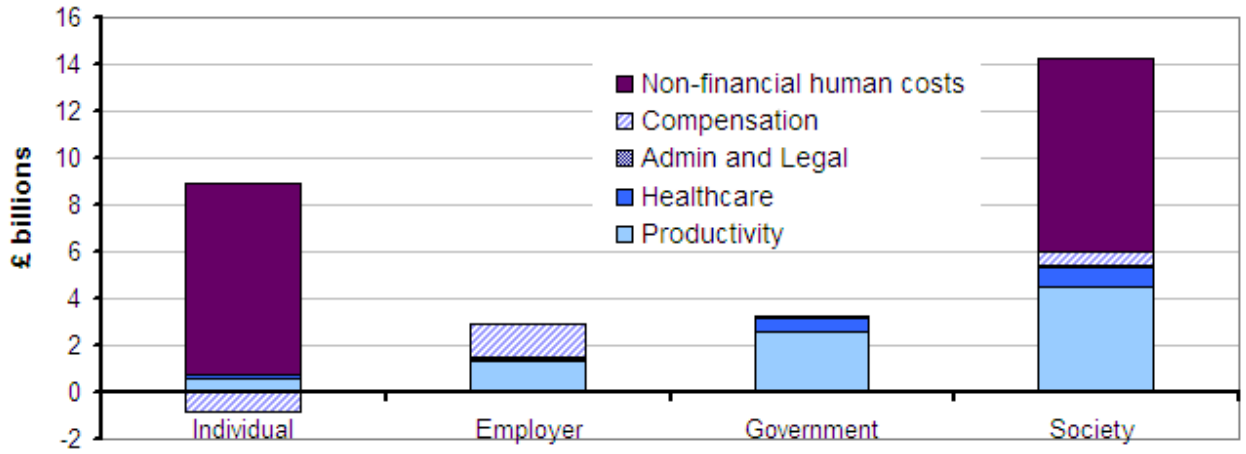
Source: HSE Cost model

## Costs by cost component

Costs to the different cost bearers can be further broken down by cost component.

**The major components of total costs to society are non-financial human costs (£8.2bn) and productivity costs (£4.5bn)**

**Figure 8: Costs to Britain of workplace injury and new cases of work-related ill health by cost bearer and cost component 2012/13 (in 2012 prices)**




Source: HSE cost model

- **Individuals:** Non-financial human costs account for almost all the costs borne by individuals. The financial losses arising from lost income, healthcare costs and administrative costs are offset by the compensation payments received.
- **Employers:** The major costs to employers arise from productivity costs (equivalent to the occupational/statutory sick pay payments made) and Employers Liability Compulsory Insurance premiums.
- **Government:** Lost income, in terms of state benefits paid and lost tax receipts accounts for around three-quarters of government costs, with the majority of the remainder attributed to 'Health and Rehabilitation' costs (incurred through NHS funding).

Table 4 summarises the cost breakdown by cost bearer and cost component.

**Table 4: Costs to Britain of workplace injury and new cases of work-related ill health by cost bearer and cost component 2012/13 (in 2012 prices)**

| Cost Category | Estimated costs (£millions) | | | |
|---|---|---|---|---|
| | Individual | Employer | Government | Total cost |
| Productivity | 580 | 1,363 | 2,542 | **4,485** |
| Health & rehabilitation | 133 | 59 | 630 | **822** |
| Admin & legal | 17 | 78 | 44 | **139** |
| Compensation | -826 | 1,405 | - | **579** |
| Non-financial human cost | 8,213 | - | - | **8,213** |
| **Total costs** | 8,117 | 2,905 | 3,216 | **14,237** |
| | Source: HSE Cost model | | | |

The compensation cost for individuals shows as negative since it is an inflow to the individual.

## Costs by type of incident

Cost estimates can be broken down by incident type. The 2012/13 cost model produces cost estimates for the following incident types:[7]

| Injury | Ill health |
|---|---|
| ■ fatal injury;<br>■ non-fatal injury<br>– with 7 or more days absence from work;<br>– with up to 6 days absence from work. | ■ work-related illness<br>– with 7 or more days absence from work;<br>– with up to 6 days absence from work. |

**Whilst non-fatal injury and work-related illness with up to 6 days off work account for almost 65% of all incidence cases, their contribution to total costs is small (<5%)**

**Source: HSE Cost Model**

**Figure 9: Proportional breakdown of injury and ill health cases by type of incident**

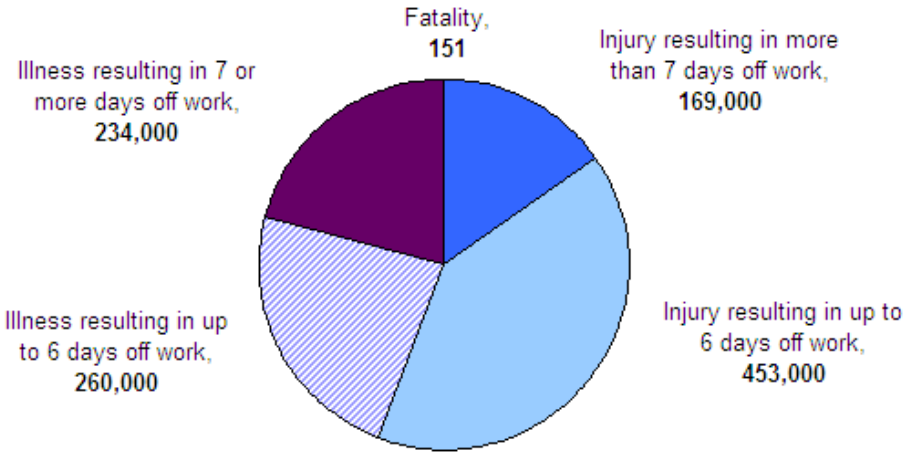
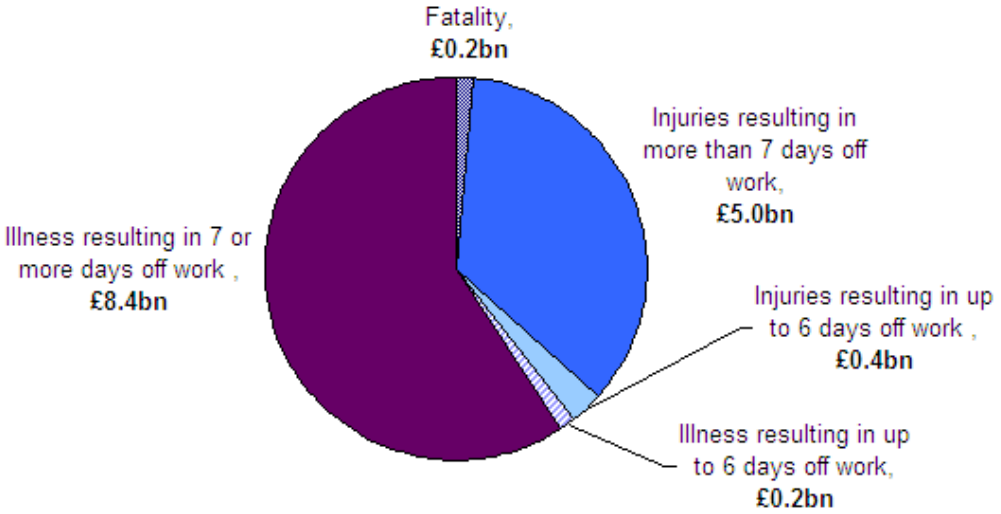



**Figure 10: Proportional breakdown of cost by type of incident**




Source: RIDDOR & Labour Force Survey (injury and illness cases); HSE cost model (costs)

[7] This incident categorisation is modified from that used in previous reports (previously, non-fatal injury was categorised by RIDDOR reportable and non-reportable injuries, whilst no finer categorisation was given for work-related illness). The revisions provide a more consistent categorisation of injuries and illnesses so they can be more readily compared.

The breakdown of total cost in 2012/13 by type of incident is summarised in Table 5.

**Table 5: Costs to Britain of workplace injury and new cases of work-related ill health by type of incident, 2012/13 (in 2012 prices)**

| Incidence Type | Total cost (£ millions, 2012 prices) | | |
|---|---|---|---|
| | central | 95% Confidence Intervals | |
| | | lower | upper |
| **Injury** | **5,635** | 5,071 | 6,202 |
| Fatal injury | **236** | 235 | 237 |
| Non-fatal injury with: | **5,400** | 4,834 | 5,966 |
| *7 or more days absence* | **4,987** | 4,422 | 5,553 |
| *Up to 6 days absence* | **413** | 380 | 445 |
| | | | |
| **Ill health** | **8,602** | 7,565 | 9,639 |
| *7 or more days absence* | **8,381** | 7,344 | 9,419 |
| *Up to 6 days absence* | **221** | 198 | 243 |
| | | | |
| **Injury and ill health** | **14,237** | 12,891 | 15,586 |

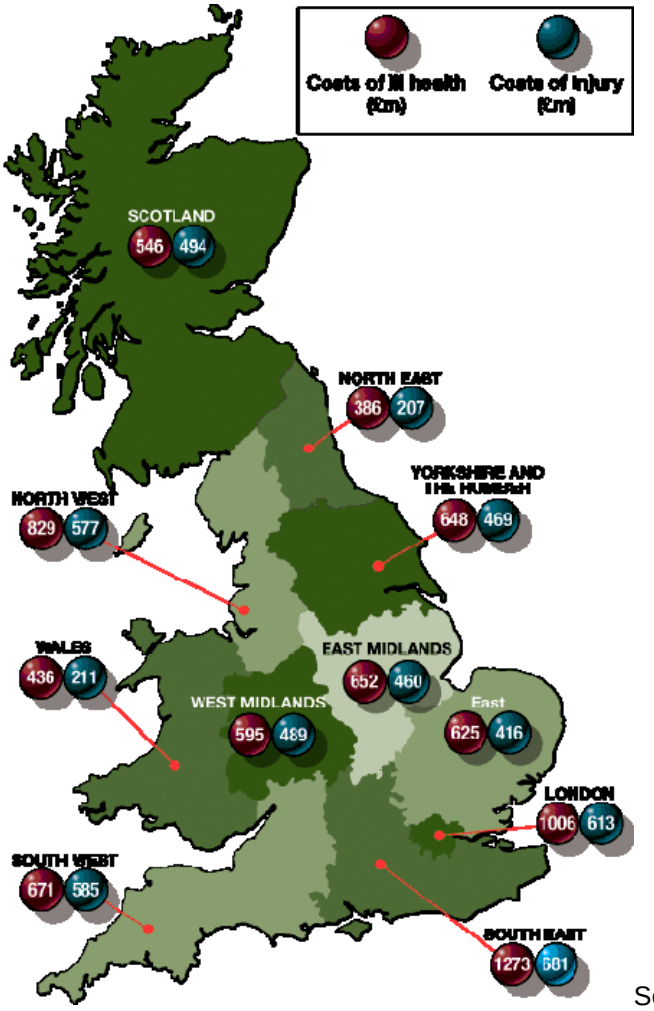
Source: HSE Cost model

## Costs by Region

Estimates of total costs in the regions and nations of Britain are obtained by multiplying the estimated regional incidence of work-related ill health and workplace injury by the relevant unit cost per case[8]. The unit cost per case for the different incident types is therefore assumed to be the same across regions (see section 'Appraisal Values' for more details on unit costs). Estimating regional costs in this way makes the assumption that the severity of illness and injury outcomes for the different incident types by region will be similar. Whilst this assumption may be simplistic, it gives a reasonable basis for estimated costs by region.

The approach for estimating regional costs does not allow for regional wage variation, which might be significant for Greater London where the average wage is markedly greater than in the rest of Britain. However, regional wage variations are affected by the industry composition of employment within a region (for example a larger percentage of professional jobs in Greater London). Since the industry composition of employment within a region does not necessarily mirror the industry composition of workplace injury and illness incidents within a region, an adjustment for regional salary variation was judged as potentially having an unknown distorting effect on the cost estimates. It was therefore felt more prudent to use the unit costs which are based on the national average salary.

**Figure 11: Costs to Britain of workplace injury and new cases of work-related ill-health by country/region of work* 2012/13 (in 2012 prices)**




Source: HSE cost model

*** Note:**

(i) Regional breakdown of costs is for those illness and injury cases for which we know the region of work in which they occurred. Those illness and injury cases for which we do not know the region of work account for a further £933 million and £434 million respectively.

(ii) Differences in costs between regions and countries do not in themselves indicate differences in risk and will largely be driven by the number of people working in the country or region. Costs in figure 11 should therefore only be used to observe the costs for a particular region or country of interest and should not be used to make comparisons between different regions or countries.

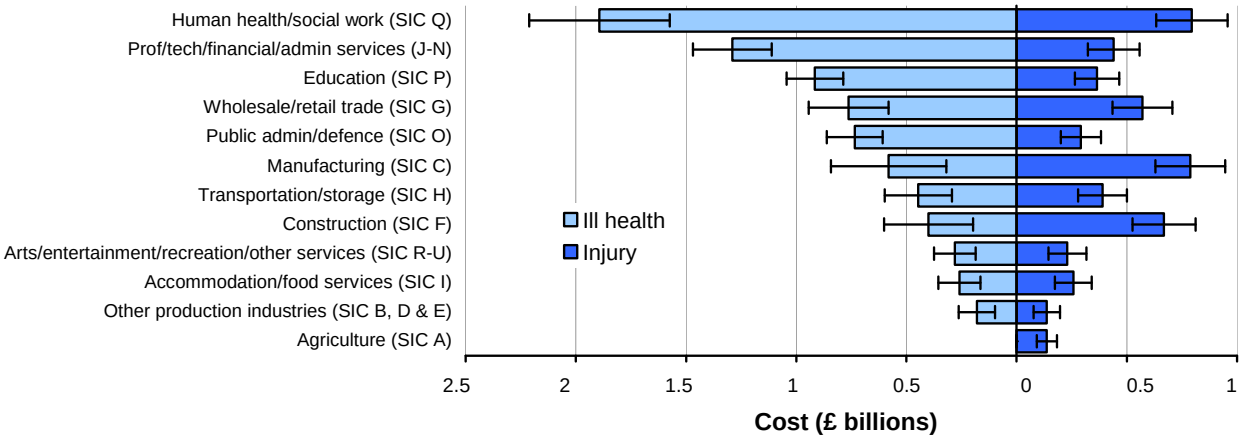
[8] Estimated separately for fatal injury, non-fatal injury with 7 or more days absence from work, non-fatal injury with up to 6 days absence from work, work-related illness with 7 or more days absence from work, work-related illness with up to 6 days absence from work.

## Costs by industry

Estimates of total costs by industry are obtained by multiplying the estimated industry incidence of work-related ill health and workplace injury by the relevant unit cost per case, adjusted to take into account industry wage differentials. As with the estimate of costs by region, estimating industry costs in this way makes the assumption that the severity of illness and injury outcomes for the different incident types by industry will be similar. Whilst this assumption may be simplistic, it gives a reasonable basis for estimated costs by industry.

Figure 12 below shows total costs by industry sector.

**Figure 12: Costs to Britain of workplace injury and new cases of work-related ill-health by industry, 2012/13 (in 2012 prices)**




Source: HSE cost model

**Note:**

(i) Cost estimates include an error bar to show the 95% confidence interval around the estimate.

(ii) Industry breakdown of costs is for those illness and injury cases for which we know the industry associated with the illness or injury. Those illness and injury cases for which we do not know the industry account for a further £813 million and £516 million respectively.

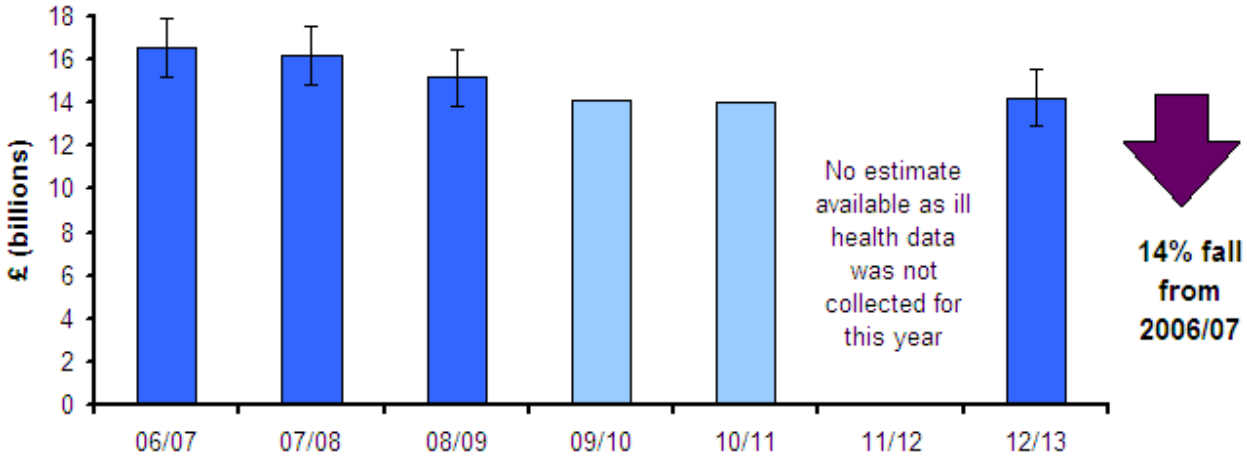
(iii) Differences in costs between industries do not in themselves indicate differences in risk and will largely be driven by the number of people working in the industry. Costs in figure 12 should therefore only be used to observe the costs for a particular industry of interest and should not be used to make comparisons between different industries.

## Changes in cost estimates over time

**Total costs of workplace injuries and new cases of work-related illness have fallen by 14% since 2006/07 reflecting downward movements in the number of cases. The total cost shows signs of levelling off in recent years**

**Source: HSE Cost Model**

**Figure 13: Costs to Britain of workplace injuries and new cases of work-related illness, 2006/07 to 2012/13 (2012 prices)**




Source: HSE cost model

**Note:** Costs for 2006/07, 2007/08, 2008/09 and 2012/13 are shown in dark blue and include an error bar to show the 95% confidence interval around the estimate. Cost estimates for 2012/13 are independent of cost estimates for 2006/07-2008/09 and can be reliably compared to these. See below for more detail.

To enable costs comparisons between years, costs for each year are presented in constant (2012) prices. Therefore changes in costs over time are driven by changes in one or both of the number and severity profile of cases.

However, since costs estimates are based on an annual average number of workplace injury and illness cases over a 3 year period, it means that the estimated number of incidence cases from one year to the next is not independent. For example the cost estimate for 2010/11 is based on a 3-year annual average number for the years 2009/10-2011/12, whilst the cost estimate for 2009/10 is based on a 3-year annual average estimate for 2008/09-2010/11, an overlap of 2 years. There is therefore a high correlation between case estimates, and hence costs estimates, from one year to the next.

To get a clear picture of movements in cost over time and to determine whether differences in estimates can be explained by sampling uncertainty in the underlying incidence estimates or not requires costs estimates for independent time periods to be considered. The costs estimate for 2012/13 can be compared with cost estimates for years prior to 2009/10. Whilst the 2012/13 estimate is statistically significantly below that for both 2006/07 and 2007/08, it is not significantly different compared with the estimate for 2008/09.

# Appraisal values, or 'Unit Costs'

Unit costs of workplace incidents, commonly referred to as 'Appraisal values' are important in policy appraisal. Policy appraisal requires valuing the costs of any proposed new health and safety interventions against the likely benefits (in terms of reduced costs associated with reduced workplace illness and injury cases) the proposed measure is likely to deliver.

The appraisal values (or unit costs) are estimated by dividing the total cost estimate by the number of new incidence cases. This can be done for the same range of incident types as for which total cost estimates are produced[9], namely:

- fatal injury;
- non-fatal injury
  - with 7 or more days absence from work;
  - with up to 6 days absence from work;
- work-related illness
  - with 7 or more days absence from work;
  - with up to 6 days absence from work.

Whilst the appraisal values reflect the same range of cost categories as the total cost estimates, for simplicity of presentation the appraisal values can be divided into two main component costs: ***non-financial human costs*** and ***financial costs.***

The average appraisal values for 2012/13 are summarised in Table 6. In most cases these are the values that should be used for appraisal of HSE interventions.[10]

**Table 6: Cost to Britain per case 2012/13 - average appraisal value estimates (2012 prices)**

| | Non financial human cost (rounded) | Financial cost (rounded) | Total cost (rounded) |
|---|---|---|---|
| Fatal injuries | 1,113,000 | 445,000 | 1,558,000 |
| Non-fatal injuries | 5,700 | 3,000 | 8,700 |
| *7 or more days absence* | 19,800 | 9,700 | 29,400 |
| *Up to 6 days absence* | 380 | 540 | 910 |
| | | | |
| Ill health | 9,200 | 8,200 | 17,400 |
| *7 or more days absence* | 19,000 | 16,800 | 35,800 |
| *Up to 6 days absence* | 290 | 560 | 850 |

Source: HSE Cost model

**Appraisal values specific to individuals, employers or Government**

The following tables (Tables 7, 8 and 9) present appraisal values reflecting only the costs to a particular cost bearer.

[9] This incident categorisation is modified from that used in previous reports (previously, non-fatal injury was categorised by RIDDOR reportable and non-reportable injuries, whilst no finer categorisation was given for work-related illness). This revised categorisation means that injury and illness costs can be more readily compared.

[10] The appraisal values should be applied with care. In particular, the user should consider whether the injury and illness classifications above are appropriate for the injury and illness types under consideration. Where these appraisal values are not considered suitable for the appraisal at hand, specific unit cost estimates should be derived.

**Table 7: Costs to individuals per case 2012/13 – average appraisal value estimates (2012 prices)**

| | Non financial human cost (rounded) | Financial cost (rounded) | Total cost (rounded) |
|---|---|---|---|
| Fatal injuries | 1,113,000 | 204,000 | 1,317,000 |
| Non-fatal injuries | 5,700 | -190 | 5,500 |
| *7 or more days absence* | 19,800 | -810 | 19,000 |
| *Up to 6 days absence* | 380 | 40 | 420 |
| | | | |
| Ill health | 9,200 | -20 | 9,100 |
| *7 or more days absence* | 19,000 | -130 | 18,900 |
| *Up to 6 days absence* | 290 | 80 | 370 |

Source: HSE Cost model

These estimates show negative financial costs (net financial income) for non-fatal injuries and ill health – this is entirely plausible, as insurance payouts partially compensate for non-financial costs, but are accounted for in our model only under financial costs.

**Table 8: Costs to employers per case 2012/13 – average appraisal value estimates (2012 prices)**

| | Non financial human cost (rounded) | Financial cost (rounded) | Total cost (rounded) |
|---|---|---|---|
| Fatal injuries | - | 129,300 | 129,300 |
| Non-fatal injuries | - | 1,400 | 1,400 |
| *7 or more days absence* | - | 4,800 | 4,800 |
| *Up to 6 days absence* | - | 110 | 110 |
| | | | |
| Ill health | - | 4,100 | 4,100 |
| *7 or more days absence* | - | 8,500 | 8,500 |
| *Up to 6 days absence* | - | 120 | 120 |

Source: HSE Cost model

**Table 9: Costs to Government per case 2012/13– average appraisal value estimates (2012 prices)**

| | Non financial human cost (rounded) | Financial cost (rounded) | Total cost (rounded) |
|---|---|---|---|
| Fatal injuries | - | 111,400 | 111,400 |
| Non-fatal injuries | - | 1,800 | 1,800 |
| *7 or more days absence* | - | 5,700 | 5,700 |
| *Up to 6 days absence* | - | 380 | 380 |
| | | | |
| Ill health | - | 4,200 | 4,200 |
| *7 or more days absence* | - | 8,400 | 8,400 |
| *Up to 6 days absence* | - | 360 | 360 |

Source: HSE Cost model

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**Note (Tables 6-9) :**
(i) Totals may not sum due to rounding.
(ii) These estimates are subject to uncertainty sampling variability in the injury and illness incidence estimates which is not shown in the table.

# Annexes

## Annex 1: Costing framework: A description of the different cost components by cost bearer

**Note: Cost components in red show money outflows; cost components in black show money inflows**

<table>
<tr><th>Cost component</th><th colspan="3">Description</th></tr>
<tr><td rowspan="5">Productivity costs</td><td colspan="3">At the society (total) level</td></tr>
<tr><td colspan="3">Captures costs associated with productivity:<ul><li>Loss of output (gross loss of earnings) – the cost model assumes full employment in the economy, therefore at the macro level the effect is one less productive worker;</li><li>Production disturbance (reorganisation and recruitment)</li></ul>(At the society level, transfer payments (e.g. sick pay, benefits, tax, national insurance) cancel out.</td></tr>
<tr><td colspan="3">How the productivity costs fall to the different cost bearers</td></tr>
<tr><td>Individual</td><td>Employer</td><td>Government</td></tr>
<tr><td>(-) Loss of gross family earnings<br><br>Loss of gross earnings due to absence from work (both short-term absences in the current year and absences in future years for those whose illness or injury leads to their permanent withdrawal from the workforce).</td><td></td><td></td></tr>
<tr><td>(+) OSP/SSP receipts<br><br>Many employers offer an occupational sick pay scheme (OSP), but others offer only statutory sick pay (SSP) and the self-employed will receive nothing at all from their employer. OSP and SSP provide the individual with income to offset their lost earnings. (The OSP/SSP receipts to the individual are exactly equal and opposite to that paid out by employers and government).</td><td>(-) OSP/SSP payments net of reimbursements<br><br>It is assumed that the employer maintains production at the same marginal cost prior to the individuals' illness or injury by either rearranging work or hiring a replacement. Therefore the employers OSP/SSP payments represent an additional cost to the employer.</td><td>(-) SSP reimbursements<br><br>Up until March 2014, the Government provided employers some reimbursement of their SSP payments under certain conditions (known as the percentage threshold scheme).</td></tr>
</table>

| | | | |
|---|---|---|---|
| | (+) State benefit receipts<br>There are a range of state benefits available to people who are not able to work because of injury or illness, including jobseekers allowance, industrial injuries disablement benefit, disability living allowance, housing benefit and council tax benefit. Like OSP/SSP receipts these offset individuals' lost earnings | | (-) State benefit payments<br>The State benefits paid by the Department of Work and Pensions are exactly equal and opposite to the state benefits received by individuals not able to work. |
| | (+) Income tax and NI savings<br>The loss of gross income results in the individual 'saving' on their income tax and national insurance contributions to Government. | (-) NI paid on OSP/SSP<br>Payments to absent employees continue to attract employers' class 1 National Insurance contributions. | (-) Net income tax and NI reduction<br>The loss of income tax and NI paid by the individual to the Government is partly offset by the employer NI received on OSP/SSP payments |
| | | (-) Work reorganisation<br>For the first 6 months of any absence the model assumes that the employer will reorganise work to cover the absent employees' duties: this reorganisation incurs managerial/supervisory time. | |
| | | (-) Recruitment and induction costs<br>The model assumes that for absences of 6 months or more, the employer will recruit temporary or permanent replacement staff and provide them with suitable induction support. | |
| Compensation | **At the society (total) level** | | |
| | Captures the overhead cost of Employers Liability insurance, a compulsory insurance for all employers, other than Government. Cost represents the profit margin and overheads for the insurance companies and the claim value consumed in legal costs and expenses. | | |
| | ***How the compensation costs fall to the different cost bearers*** | | |
| | ***Individual*** | ***Employer*** | ***Government*** |

| | | | |
|---|---|---|---|
| | (+) Lump sum payments to individuals made from claims against Employers' Liability insurance cover. | (-) Total cost of Employers Liability insurance premiums made by employers. | |
| Non-fianancial human costs | **At the society (total) level** | | |
| | A monetary value of the impact on quality of life of affected workers: often the greatest impact of illness and injury is on quality of life, including lost life. It is standard practice in the economics of public policy to place a monetary value on non-financial costs where possible. | | |
| | ***How the non-financial costs fall to the different cost bearers*** | | |
| | ***Individual*** | ***Employer*** | ***Government*** |
| | (-) A monetary value of the impact on quality of life of affected workers. | | |
| Health and rehabilitation | **At the society (total) level** | | |
| | Total cost of health and rehabilitation associated with workplace injury and work-related illness (whilst the majority of costs are borne by the Government through NHS funding, there are some additional costs borne by individuals (eg prescriptions). Added to this is the profit margins and overheads for insurance companies providing private health insurance. | | |
| | ***How the health and rehabilitation costs fall to the different cost bearers*** | | |
| | ***Individual*** | ***Employer*** | ***Government*** |
| | (-) Out of pocket expenses…<br>… including funeral expenses (for fatal injuries), prescription charges, additional travel and living costs, home modifications. | | (-) NHS treatment and rehabilitation costs…<br>... including ambulance costs, hospital and clinic costs, GP costs, NHS prescription costs. |
| | (-) Premiums for private medical insurance<br>Proportion of premiums assumed to be associated with work related incidents (based on data provided by the health insurance industry). | (-) Corporate private health insurance<br>Proportion of premiums assumed to be associated with work related incidents (based on data provided by the health insurance industry). | (+) Treatment and rehabilitation covered by private health insurance<br>Value of medical insurance claims paid by insurers assumed to be associated with workplace incidents (based on data provided by the health insurance industry). |
| | **At the society (total) level** | | |

| | | | |
|---|---|---|---|
| | The costs of administrative activities to individuals, employers and Government associated with informing of sickness absence and processing the various money inflows and outflows from sick pay and benefit payments, compensation and insurance claims etc. The total legal costs and internal labour costs incurred by employers, HSE and Local Authorities are also a net cost to society. | | |
| | ***How the health and rehabilitation costs fall to the different cost bearers*** | | |
| | **Individual** | ***Employer*** | **Government** |
| | (-) Administration of insurance, compensation and benefit claims<br><br>Individual incur costs from the administrative activities associated with initiating and managing claims for sick pay and state benefits and compensation and insurance payouts. | (-) Administration of SSP/OSP, insurance and compensation claims<br><br>Employers incur costs from the administrative activities necessary to deal with the above payments and claims. | (-) Administration of SSP and benefits claims<br><br>The clerical overhead associated with administering state benefits and statutory sick pay is a cost to the government. |
| | (-) Insurance company profit margin<br><br>Individuals can have various insurance products to protect their income, including mortgage and income protection and life insurance. The cost of insurance to the individual is the net difference between premiums paid and payments received which represent the insurance companies' profit margin and overheads. | | |
| | | (-) HSE or LA investigation/prosecution – internal costs + legal costs<br><br>Cost to employers of management time for dealing with HSE or Local Authorities investigations/ prosecutions and the arising legal costs. | (-) HSE or LA investigation/prosecution – internal costs<br><br>The internal costs borne by the HSE and Local Authorities for investigating work related incidents. |
| | | (-) Fines paid<br><br>The cost of any fines paid by employers due to breach of health and safety regulations. | (+) Fines received<br><br>The cost of any fines received by government due to breach of health and safety regulations (equal and opposite to that paid by employers). |

## Annex 2: Detailed breakdown of costs by cost bearer in 2012/13 (2012 prices)

| | A. Individuals and their families (including the self-employed) | £ m | B. Employers | £ m | C. Government and general taxpayer | £ m | D. Total cost to society = A + B + C £m |
|---|---|---|---|---|---|---|---|
| **Productivity costs** | | | | | | | -4,349 |
| (Due to income losses) | Loss of gross family earnings: (i) temporary losses prior to return to work, (ii) permanent losses due to withdrawal from workforce or death | -4349 | | | | | |
| | OSP/SSP receipts | 1,087 | OSP/SSP payments net of reimbursements | -1077 | SSP reimbursements | -10 | 0 |
| | State benefit receipts | 1,813 | | | State benefit payments | -1,813 | 0 |
| | Income tax and NI saving due to difference between pre and post injury/illness income, assuming all compensation payments are tax free | 869 | National Insurance paid on OSP/SSP | -150 | Net income tax and NI reduction | -719 | 0 |
| (Due to production disturbance) | | | Work reorganisation | -60 | | | -60 |
| | | | Recruitment and induction costs for temporary/permanent replacement staff | -76 | | | -76 |
| | | | | | Loss of profit on economic output not produced by individual absent from workforce | 0 | 0 |
| | | | | | | | |
| **Compensation** | EL insurance receipts, net of legal costs | 826 | EL insurance premiums | -1,405 | | | -579 |
| | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Non-Financial Human Costs** | Monetised value of non-financial human costs | -8,213 | | | | | -8,213 |
| | | | | | | | |
| **Health and Rehabilitation** | Out of pocket funeral expenses, travel expenses, prescription charges, home expenses | -77 | | | NHS treatment and rehabilitation costs (short and long term) | -719 | -796 |
| | Proportion of individual private health insurance premiums attributable to work related illness/injury | -56 | Proportion of corporate private health insurance premiums attributable to work related illness/injury | -59 | Value of treatment and rehabilitation coverd by private health insurance claims | 89 | -26 |
| | | | | | | | |
| **Administration and Legal** | Administration of insurance, compensation and benefit claims | -9 | Administration of SSP/OSP, insurance and compensation claims | -22 | Administration of SSP and benefits claims | -26 | -57 |
| | Insurance company profit margin and administration costs on other insurance products | -8 | | | | | -8 |
| | | | HSE or LA investigation / prosecution - internal costs + legal costs | -41 | HSE or LA investigation / prosecution - internal costs | -33 | -74 |
| | | | Fines paid | -15 | Fines received | 15 | 0 |
| | | | | | | | |
| **Total Costs** | | -8,117 | | -2905 | | -3,216 | -14,237 |

Source: HSE Cost model

## Annex 3: Methodological and data improvements to the cost model

The HSE cost model used to estimate these costs of workplace injury and illness was developed following a comprehensive review and update to HSE's previous methods. A particular strength of the estimates is that the methods on which they are based have been externally validated by academic experts. However, there is considerable literature on the cost of health and safety incidents and a rich body of economic research is expected to continue to provide possible improvements. As such, the Costs to Britain method is best regarded as a continually evolving methodology.

The details of the method used to estimate costs of workplace injury and illness is fully documented in a HSE Research Report[11]. However, since this report was published and the model implemented across further years a number of data limitations in some of the key input variables became apparent which resulted in further methodological adaptations to the model. These changes highlight that the cost estimates can never be 100% accurate. As with most economic models, it is impossible to exactly replicate all costs, and in fact they require the combination of data with assumptions.

These further changes were intended to improve the Costs to Britain results as a useful indicator of performance, where the change from year to year is important as well as the overall figure in any one year.

Particular issues to note:

**Holding 'never returns' constant across years.** Those people whose illness or injury results in their permanent withdrawal from the labour market are an important subset of cases, because of their high associated costs. However, it is difficult to estimate the numbers who permanently withdraw from the labour market both now and in the future as a result of a workplace illness or injury arising from current working conditions. The LFS currently provides the best basis for estimating the magnitude of this group, though it is recognised to be an imperfect measure of the absolute number and subject to measurement error (since it requires respondents to predict whether their injury or illness will result in them never working again). For this reason, the estimate of the number of 'never returns' is held constant in the model across years. This provides a representation of the order of magnitude of costs that these cases incur each year, without risking introducing spurious change in costs because of the potential measurement error in the number of cases themselves.

**Linking new claimants of Industrial Injuries Disablement Benefit (IIDB) to each year's new cases.** It was intended that the cost model would use actual data on new claimants of IIDB within each year to estimate the total annual IIDB benefits received by individuals. However, looking at the number of new claimants across the years, it is clear that there is considerable uncertainty around the link between the emergence of new IIDB claimants and actual new cases of injury or illness. This is because IIDB can be claimed for pre-existing conditions (before the particular year of the Costs to Britain accounting period). As additional conditions become eligible for IIDB, this creates a 'surge' of applicants. In the short term, we have addressed this problem of peaks and troughs in the numbers of claimants by taking a moving three-year average of new claimants in the model. This ensures that the figure for new IIDB claimants used in the model is based upon the actual figure, although spikes due to newly-added eligible health conditions are smoothed. This is preferable, as these movements reflect changes in the benefit structure, rather than in working conditions. While this problem is greater in the case of prescribed diseases, the method has been extended to eligible injuries also to guard against similar variability in the future. We will be reviewing how we estimate the number of IIDB claimants within the model further in the coming year (see Annex 4).

**Controlling for occupational cancer in compensation and IIDB.** Both of these cost components were originally included in the model in the aggregate. They were estimated independent of the actual incidence data by using estimates of Employers Liability premiums and payouts made in 2011 for compensation and actual numbers of new claimants under IIDB. However, this 'top down' approach means that costs related to certain conditions which are excluded from the Costs to Britain estimate, such as occupational cancer, were captured and carried into the model. This led to a small overestimate of the costs and would have risked double-counting with any future cost estimate for occupational cancer. A method has now been developed to estimate the proportion of these aggregate costs which are attributable to occupational cancer and the adjustments made in the model.

**Uprating of benefits by Consumer Prices Index (CPI).** Starting from April 2011, state benefits have been inflated each year by CPI rather than the Retail Prices Index (RPI). Since 2007, CPI has on average been around 0.3% below RPI. At present, RPI remains the primary measure of inflation in the model and is used to inflate the majority of unit costs[12]. Where previously it had been assumed that there was no difference

[11] www.hse.gov.uk/research/rrhtm/rr897.htm

[12] Except for state benefits (CPI, as above) and healthcare costs (which are uprated by the Health and Community Services Pay and Price Index)

between the annual inflation of benefits and general prices (because they both went up by RPI), now the model assumes an annual difference of around 0.3% points of price growth above benefit growth. This presents a real-terms reduction in benefit payments from Government to individuals. However, this only affects never-returns, who are the only group in the model for whom costs are expected to extend beyond one year. As such, the effects on costs have been minimal.

**Revised categories for workplace injuries and work-related ill health cost estimates.** When the cost model was first developed, injury cost estimates were disaggregated by fatal injury, RIDDOR reportable non-fatal injury and non-reportable non-fatal injury. No further disaggregation was made of the ill health cost estimates. This categorisation has now been modified to further disaggregate ill health costs according to the resulting time taken off work (7 days or more and up to 6 days). The non-fatal injury categories have also been aligned with these new illness categories. This change has meant that the assumptions made about treatment pathways for illness cases have had to be modified slightly to those used previously. This has had a minimal impact on 'Health and Rehabilitation' costs for work-related illness cases

**Accounting for lost income amongst those workers who 'never return' to the labour market as a result of their workplace injury or illness.** When the cost model was first established the estimate of 'never returns' was based on data from a single years' Labour Force Survey data (2008/09). The estimate was based on a very small number of sample cases and it was not possible to break down the overall estimate by any other factors. Since then, questions to ascertain the number of 'never returns' have been included in the LFS most years. By combining several years data together to give an annual average estimate of the number of 'never returns', it is now possible to get breakdowns of the 'never returns' by a range of factors. This has shown that a number of people reporting leaving the labour market as a result of their workplace injury or illness are past retirement age. However, the model assumes a retirement age of 65, and estimates income losses for fatal injury and 'never return' cases only up until that point. By including 'never return' cases aged 65 or more in the estimate of lost income violates this assumption. The model has therefore been revised to account for future years lost income in only those 'never returns' cases who are less than 65 at the point of withdrawal from the labour market. This has had only a minimal impact on costs.

## Annex 4: Future improvements and developments to the HSE Cost Model

HSE economists and statisticians are engaged with experts in other Government departments, UK academics and internationally on the methodology for costing occupational injury and illness.

**Occupational cancer**
The LFS is a very good source for estimating the incidence of work-related injuries and ill health conditions due to current or recent working conditions, but is severely limited in terms of measuring the much rarer long latency conditions such as occupational cancers or chronic obstructive pulmonary disease (COPD). This is because the LFS estimates are based on an individual's self assessment of the link between their newly occurring ill health and their work (which for long-latency disease will include work from many years ago).

Now that new estimates of the burden of occupational cancer are available (in work by Rushton et al, 2010[13]), HSE has been developing a cost model which estimates cancer costs. This has required further work to address issues such as (i) the appropriate value to be placed on a fatal cancer (which has been reviewed in a separate research project by Newcastle University) and (ii) whether and how to adjust this valuation for an individual's age at the time of cancer registration or death. Because the estimates of the cost of occupational cancer will reflect historical exposures, while the existing model's aim is to reflect illness and injury arising from current working conditions, it is unlikely that the Costs to Britain estimate and any future cost of occupational cancer estimate will be directly combined. It is planned that a separate estimate of the cost of occupational cancer will be published after the remaining work on it has been completed; as previously noted, this is expected to represent a considerable level of cost.

**Valuation of human life**
It is standard practice in the economics of public policy to place a monetary value on non-financial costs where possible. Successive Governments have recognised the need for quantitative measurements for non-financial impacts on wellbeing. The Office for National Statistics (ONS) is currently exploring the potential for improved measurement of societal wellbeing[14]. It has published measures of national well-being which are intended to cover the quality of life of people in the UK, the environment and sustainability, as well as the economic performance of the country.

Non-financial 'goods and services', such as clean air, protection from crime, and health and safety, typically contribute to people's quality of life and wellbeing. However, they are generally not products that can be purchased directly and are therefore often called 'non-market goods and services'. Whilst market goods and services are represented in GDP figures, it is often the case that markets are not feasible or ethically acceptable for non-market goods. It is for that reason that they are not reflected in GDP and are thus 'non-financial', not that they are less important to quality of life than market goods.

If it were possible that markets could be created it would be possible (although not always ethical) to pay to secure more of these goods. Outside of the working context, there is often little controversy around paying for safety – consider the impact of safety features on car prices. But in the absence of markets, economists seek to find out how much people would hypothetically pay for safety or health if markets existed.

Whilst there is no substitute for real market data, exclusion of non-financial costs on the basis that they do not involve a financial transaction results in an underestimation of economic welfare costs. This would undermine the usefulness of the costs as an indicator of economic value and input to regulatory decision-making.

The method for valuing non-financial human costs in Costs to Britain was externally reviewed by leading academics when the model was created. However, HSE are taking into account new methods and techniques in valuation and future publications of the cost estimates may take account of new developments in research to refine the model's estimate of non-financial costs. This includes work currently underway by the Interdepartmental Group on the Valuation of Life and Health, which is developing new guidance on valuation for Government generally. In addition, HSE will want to maintain consistency with methods currently being used as part of the development of a model to estimate the burden of occupational cancer.

**Cost estimates by broad illness type**
Currently the HSE cost model only produces work-related illness cost estimates according to duration time off work (up to 6 days / 7 days or more). The limitation in providing further breakdowns by ill health type rests in the difficulty of apportioning 'never return' cases by illness type. With 5 years worth of data from the LFS relating to 'never returns', and an additional years' data due next year, we will assess the feasibility of

[13] See Rushton et al (2012) The Burden of Occupational Cancer in Great Britain HSE Research Report RR931: www.hse.gov.uk/research/rrhtm/rr931.htm
[14] See www.ons.gov.uk/ons/taxonomy/index.html?nscl=Measuring+Societal+Well-being

providing cost estimates for the two main work-related illness types reported in the LFS namely musculoskeletal disorders (MSDs) and stress, depression and anxiety.

**Accounting for Industrial Injuries Disablement Benefit (IIDB)**
The model currently uses a 3-year annual average estimate of number of new claimants (excluding cancer claimants) to estimate the number of cases claiming IIDB. However, it appears that the numbers included in the model currently are an overestimate since they include new claimants post retirement age (the model assumes that earnings after retirement are not affected). They also include some long latency illnesses (other than cancer) which will be related to historic working conditions. We will undertake a review of IIDB benefits to ensure that the model includes the best representation of those cases counted in the HSE cost model claiming IIDB.

**Compensation**
Within the model currently, compensation costs are assumed to fall to individuals and employers only. However, we have come to learn that the Department for Work and Pensions Compensation Recovery Unit may reclaim some of the compensation payment to recompense for healthcare costs and benefit payments. We will investigate this further and consider whether any amendment to the model is required to better reflect the profile of compensation costs by cost bearer.

**Administration and legal costs**
HSE now operates a Fee For Intervention (FFI) cost recovery scheme, which came into effect on 1st October 2012. Under the Health and Safety (Fees) Regulations 2012, those who break health and safety laws are liable for recovery of HSE's related costs, including inspection, investigation and taking enforcement action. We will review how to take account of this (and other cost recovery schemes operated by HSE) within the cost model. Accounting for cost recovery will impact on the costs to both employers and government. It represents a cost to the employer but an equal and opposite benefit to the government. Therefore at the total cost to society level these transfer costs cancel each other out.

**Other assumptions in the model**
The model includes a range of assumptions which have remained fixed since the model was developed. We will undertake a review of these assumptions, and where feasible, update them.

**Other refinements**
There are various possible extensions of the cost model to include more cost elements than are currently identifiable as gaps. The cost model is currently focused on impacts for which reliable data is available. Other impacts associated workplace injuries and work-related ill health are expected to have significant costs but sufficient data is currently unavailable. Further research may enable the costs of these impact to be estimated. The main impacts are:

- costs to informal carers of those who are incapacitated by occupational injury or illness;
- impacts on earnings growth for those individuals affected by a health and safety accident or illness.

## Annex 5: Uses of the cost estimates

**Uses of the aggregate costs**
Estimates of the aggregate costs of workplace injuries and work-related ill health are used for three broad purposes by HSE and other stakeholders: to indicate the overall scale of the problem; to describe its distribution; and to show how it is changing over time.

For the **overall scale** of health and safety failings, the cost estimates provide a means of adding together very different health and safety outcomes (for example fatalities and minor injuries) so that they can be presented in a single summary measure. There is interest in such a measure from a wide range of stakeholders: Government departments; the media; private sector organisations; employer organisations; trade unions; academics and the public. HSE believes that this overall measure needs to be robust, transparent and based on sound evidence. The development of the methodology involved external input and peer review and is fully documented in the detailed methodology report.[15]

It is important to note that this figure is an estimate of the scale of remaining health and safety failings, after all existing regulations and other risk control actions by the health and safety system have had their effects. It is not in itself a measure of the benefits from such actions (which could be compared with the costs e.g. of regulation). However, the unit costs can be used in this way for particular interventions, as described below, and can also be employed to show the 'cost savings' from the historical improvements achieved in health and safety outcomes.

The **distributio**n of the costs is also of interest, as illustrated in the various analyses presented in earlier sections of this document. In particular, the share of the costs borne by different groups – individuals, employers and Government – is useful in understanding the incentives operating on each of these with respect to taking risk control measures (when considered alongside the costs of implementing these measures). The breakdown by type of incident can help inform strategic policy and new programme development, for example concerning interventions in the area of safety or of health. The costs in different regions and different industry sectors are of interest to those who live or work in them.

Finally, **changes over time** in the aggregate costs provide an indicator of movements in the overall performance of the health and safety system – since the estimates focus on costs due to current working conditions, they provide a good indication of current performance. The costs estimates are updated each year when the annual health and safety statistics become available.

**Uses of the 'appraisal values' (unit costs)**
The primary use of appraisal values (or unit costs) is in impact assessments and other economic appraisals of proposed health and safety interventions. When valued, the benefits of avoided health and safety impacts (i.e. avoidance of the costs estimated here) can be compared with any cost to employers and/or Government of the measure being appraised. Strictly speaking, the appraisal values are average costs rather than marginal costs but, as the majority of costs are proportional to the number of new incidence cases, this subtlety is not likely to be significant.[16]

Unit costs for separate cost bearers reflect only the costs to one group in society and do not take into account the net effects of transfers, such as benefits payments from Government to individuals. They therefore are not normally suitable for sole use in social cost benefit analysis of interventions. However, it can be useful to demonstrate the impact of a policy on a particular group within distributional cost analysis - for example using the costs to employers' appraisal values to estimate benefits to employers of reduced injury or ill health, or net costs to business of an intervention. Indeed enquiries to HSE on the costs of work related injuries and ill health often request the cost to only one group, such as 'employers' or 'workers'.

[15] www.hse.gov.uk/research/rrhtm/rr897.htm

[16] For more information on impact assessments see www.gov.uk/government/publications/better-regulation-framework-manual

## Annex 6: Glossary of economic terms and concepts

| Term | Explanation |
|---|---|
| 'in 2012 prices' | Costs are estimated by using the basic formula 'costs=quantity x price' (see 'Methods' section). The price information used for all cost estimates presented in this report are prices that were current in 2012 (e.g. the wage data used to estimate the lost income of an individual is based on average wages in 2012; the tax and national insurance rates used are those that were in place in 2012/13). Estimating costs for all years in constant 2012 prices means comparisons of costs over time can be made free of price changes. |
| Cost bearer | The group in society to whom the costs fall. Within the cost model, there are three cost bearers: individuals, employers and government. Note that this assessment considers only where costs fall *directly*; it does not consider whether costs can be 'passed on' to others e.g. where businesses are able to pass on some or all of their costs in the form of higher prices to consumers. |
| Costs to Britain<br>Costs to society | Combining the costs to the 3 different cost bearers gives a total 'Cost to Britain' (sometimes referred to as 'Cost to Society'). This total cost is net of transfers from one group to another (for example, sick pay represents a cost to the employer but is an equal and opposite 'benefit' to the individual who receives it. |
| Cost component | The total cost estimate is made up of a range of different cost elements, including both financial and non financial costs. Costs can be categorised into 5 broad groups: productivity costs, health and rehabilitation costs, administrative and legal costs, compensation and non –financial human costs. More details of each of these cost groups are given in Annex 1. |
| Financial costs | Direct cost incurred by one of the cost bearers – either in terms of payments that have to be made or income/production that is lost. |
| Non-financial costs | Is a monetary value of the impact that the illness or injury has on the quality of life of the affected worker. |
| 'Never returns' | Those workers who permanently leave the labour market as a result of their workplace injury or work-related illness. |
| Appraisal values | The unit cost of a work-related injury or illness, calculated by dividing the total cost by the number of cases. These values are used in policy appraisal (hence the term 'appraisal values'), whereby the costs of any proposed new health and safety interventions are measured against the likely benefits (in terms of reduced costs associated with reduced workplace injury and illness cases) the proposed measure is likely to deliver. |

# Links

For more information about costs of workplace fatalities, injuries and ill health in Great Britain see:

- Detailed report of the methods used to estimate economic costs:

  www.hse.gov.uk/research/rrhtm/rr897.htm

- Detailed cost breakdown for years 2006/07 to 2012/13:

  www.hse.gov.uk/statistics/tables/index.htm#cost-to-britain

- For more detail on the annual number of injury and work-related ill health cases , used within the cost model, see:
  - For fatal injuries: www.hse.gov.uk/statistics/tables/index.htm#riddor
  - For non-fatal injuries and ill health: www.hse.gov.uk/statistics/lfs/

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For information regarding the quality guidelines used for statistics within HSE see www.hse.gov.uk/statistics/about/quality-guidelines.htm

A revisions policy and log can be seen at www.hse.gov.uk/statistics/about/revisions/

Additional data tables can be found at www.hse.gov.uk/statistics/tables/.

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