# Achieving the *Revitalising Health and Safety* Targets

## Statistical Note on Progress Measurement

## Update based on data published in *Health and Safety Statistics 2000/01*

**Health and Safety Executive**

**Epidemiology and Medical Statistics Unit and Economic and Statistical Analysis Unit**

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## *Summary*

**The injuries target:**

***By 2010, to reduce the incidence rate of fatalities and major injuries by 10%.***

The rate of fatal and major injury in 2000/01, with a preliminary uprating for underreporting from the LFS, shows a small reduction on 1999/2000, the base year. This is liable to change when the estimate of reporting can be properly assessed across the 3 year period 1999/2000 to 2001/02. We do not expect the final figure for 2000/01 to be much different from the base year.

**The ill health incidence target:**

***By 2010, to reduce the incidence rate of cases of work-related ill health by 20%.***

It is not yet possible to make an assessment of trends since the base year, because 2000/01 data are not available from some sources, the figures tend to fluctuate from year to year, and the picture varies for different types of ill health.

**The days lost target:**

***By 2010, to reduce the number of working days lost per 100 000 workers from work-related injury and ill health by 30%.***

No new data are available on days lost: the latest relate to 1997/98 for injuries and 1995 for ill health.

**Methodological developments:**

HSE has taken several steps to improve the evidence base for the ill health incidence target.

***Existing sources:*** A new contract is soon to be signed for specialist doctor surveillance (as provided by the ODIN schemes up to March 2002). This will run for five years, with the possibility of extension for a further five, covering the rest of the strategy period. Another survey of self-reported work-related illness (SWI) will take place in winter 2001/02 , and we plan to repeat this in 2004/05 and 2009/10. Further consideration of the existing data sources for musculoskeletal disorders and stress has led us to the view that there should be no single 'leading' source: rather, the incidence estimates from the SWI surveys may need to be 'integrated' with the annual percentage changes from ODIN.

***New sources:*** A project has been initiated to investigate the feasibility of several potential new sources, including workplace-based self-reporting surveys, surveillance by GPs, and estimating the fraction of certain illnesses attributable to work exposures.

# I Introduction

The *Revitalising Health and Safety* strategy statement launched last year set three national targets for improving health and safety performance: by ***2010***;

- to reduce the number of ***working days lost*** per 100,000 workers from work-related injury and ill health by ***30%***;
- to reduce the incidence rate of cases of ***work-related ill health*** by ***20%***;
- to reduce the incidence rate of ***fatalities and major injuries*** by ***10%***;

and to achieve ***half*** the improvement under ***each target*** by ***2004***. The targets relating to ill health also featured in *Securing Health Together: A long-term occupational health strategy for Great Britain*.

In June 2001 the Health and Safety Executive (HSE) published a ***Statistical Note on Progress Measurement*** setting out the principles which its statisticians will use to assess progress against the targets (on the HSE website at www.hse.gov.uk/statistics/statnote.pdf). Among these principles, the *Statistical Note* promised that "a report on progress will be prepared each autumn, comparing the latest data with those for the base year (1999/2000)".

This is the first of the annual reports, based on data available at October 2001 relating to the national targets for injuries, ill health incidence and days lost. It uses the figures just published in ***Health and Safety Statistics 2000/01*** (on the website at www.hse.gov.uk/statistics/pdf/hss0001.pdf). Readers are referred to this publication for further explanation of the data sources, more detailed figures (e.g. by industry and occupation) and a full commentary on them.

At this early date in the strategy period the data are very limited: we have 2000/01 figures for some indicators, but for others the latest are for 1999/2000 or earlier years. Moreover, any assessment of progress against the targets at this stage must be ***provisional***: to quote from the *Statistical Note,* "estimates … will be revised as further years' data become available" (General Principle 2), and the assessment will "use statistical modelling on data from a run of years" rather than just comparing one year with another (General Principle 3).

We see this initial progress report as the start of a process: future years' reports – certainly by the mid-point of the strategy period (2004/5) – will have progressively more substantive content. To help guide this process, we would welcome comments from interested parties on both the form and the content of this first report (to alan.hd.spence@hse.gsi.gov.uk).

The remainder of this report presents the data which are relevant to the three targets – for injuries (Part II), ill health incidence (Part III) and days lost (Part IV). A final section (Part V) describes developments concerning some of the methodological ideas discussed in the *Statistical Note* relating to existing and new sources of data on work-related illness.

## *II The injuries target*

The *Revitalising Health and Safety* indicator for injuries is the sum of two components:

- the rate of reported ***fatal*** injury to workers (fatalities are virtually fully reported); and
- the rate of reported ***major*** injury to employees, uprated by an estimate of employers' under-reporting of non-fatal injuries derived from the Labour Force Survey (LFS).

(Please see Injuries Principle (2) of the *Statistical Note* for a detailed explanation of this approach).

Recent figures for this indicator and its component parts are presented in Table 1. It can be seen that, whether looking at the reported or the uprated figures, the rate of fatal and major injury fell in the four years to 1999/2000.

### Table 1: Rates of fatal and major injury per 100 000 workers

| | Fatal | Non-fatal major | | Fatal and major | |
|---|---|---|---|---|---|
| | | Reported (RIDDOR) | Uprated (using LFS) | Reported | Uprated |
| 1996/97 | 1.1 | 127.5 | 285.9 | 128.6 | 287.0 |
| 1997/98 | 1.0 | 127.6 | 269.2 | 128.6 | 270.2 |
| 1998/99 | 0.9 | 121.7 | 263.4 | 122.6 | 264.3 |
| 1999/2000 | 0.8 | 116.6 | 262.0 | 117.4 | 262.8 |
| 2000/01 | 1.1 | 110.3(a) | 255.5 (b) | 111.4(a) | 256.6(b) |

(a) Estimated final figure including an allowance for late reports.
(b) Uprated using a reporting level estimated from LFS data up to 2000/01.

In 2000/01 there was a further fall in the indicator: a rise in the rate of fatal injuries was accompanied by a fall for non-fatal major injuries. However, the 2000/01 figure has not yet been finalised, in two respects. First, the rate of reported fatal and major injuries is based on provisional data plus an allowance for late reporting of injuries (from examining trends in the difference between provisional and final figures in previous years), and will be replaced by final RIDDOR data next year. From past years' experience, this is unlikely to have a major effect.

Second, the uprating factor for underreporting of non-fatal major injuries is derived from the LFS as the ratio of the rate of all reported injury to the LFS rate of all reportable injury. The LFS rate is pooled (or averaged) over 3 years, so for example, the LFS rate for 1999/2000 is the average for the years 1998/99, 1999/2000 and 2000/01. However, for the year 2000/01, the pooled LFS rate will only be available next year. Therefore, the LFS (pooled) rate for 1999/2000 is projected to apply in the uprating factor for 2000/01. This will be amended next year to use the LFS rate for 2000/01. The projected rate for the LFS effectively assumes that the level of reporting has fallen again (as it did in the last two years). The level of reporting of injuries to employees was 47.4 %

in 1997/98, 46.2% in 1998/99, and 44.5% in 1999/2000. The projected figure for 2000/01 is 43.2% (= 100 x 110.3 / 255.5 – see Table 1). However, if the LFS rate for 2000/01 suggests that reporting has fallen even further, then the rate of fatal and major injury in 2000/01 will be higher than shown. The *Revitalising* indicator will be higher than in 1999/2000 if reporting falls below 42.2% (since 42.1% = 100 x 110.3 / 262.0 – see Table 1).

Overall, the rate of fatal and major injury in the first year of the period covered by the Strategies is not likely to be much different from the figure for the base year.

## *III The ill health incidence target*

As explained in the *Statistical Note*, the position for ill health incidence is considerably more complicated than for injuries. Work-related ill health comes in many different forms and no single data source can cover all of them adequately. There are several existing sources, with further ones being developed, and each is more appropriate for measuring the incidence of some diseases than of others.

Therefore an overall indicator does not emerge naturally from the data, as it does for injuries, but needs to be assembled from its component parts. This will involve two steps:

- the picture for each disease must be put together by ***integrating*** data from (normally) several ***sources***; and
- the global view for work-related illness as a whole must be obtained by ***aggregating*** the picture for different ***diseases***.

(Ill Health Principle (3) in the *Statistical Note* describes how this integration and aggregation might be done).

Both processes will require major methodological work, on which HSE has now embarked. In this first progress report, the data are presented ***separately*** for different diseases and disorders, and ***alternative estimates*** are given from the various sources. Moreover, for simplicity the figures are shown as absolute numbers rather than rates per 100 000 workers. This document can therefore be seen as setting out some of the building blocks from which an overall judgement on progress against the target will eventually be constructed.

Tables 2 to 9 below present the available recent incidence data for eighteen diseases and disorders, in eight groups,: musculoskeletal disorders, stress, vibration-related disorders, respiratory diseases with long and short periods of latency (the delay between exposure and the onset of the disease), skin disease, hearing loss and infections; these groupings are closely based on those in the *Statistical Note* (Annex B). The data come from five sources:

- Household surveys of self-reported work-related illness ***(SWI)***
- Voluntary reporting of occupational diseases by specialist doctors in the Occupational Disease Intelligence Network ***(ODIN)***

- New cases of assessed disablement under the Department for Work and Pensions' Industrial Injuries Scheme ***(IIS)***
- Statutory reports under HSE's Reporting of Injuries, Diseases and Dangerous Occurrences Regulations ***(RIDDOR)***
- Deaths from mesothelioma and other occupational lung diseases recorded on Death Certificates ***(DCs)***.

Where it is possible to identify a ***'leading'*** source, this is shown in bold type (but see the discussion of methodology in Part V below). Further information on each of the sources is given in the *Statistical Note* and in *Health and Safety Statistics 2000/01*.

The Tables give the most recent figures for each disease from each relevant source. For the SWI surveys these relate to 1995, since the SWI survey carried out in 1998/99 did not provide estimates of the incidence of new cases in the last 12 months (the target was set in terms of incidence rather than the 'prevalence' of ill health, which includes longstanding as well as new cases). For most of the other sources, data are shown for the three years 1998-2000; where 1995 estimates are available on a consistent basis these are given too.

Estimates from both the SWI surveys and ODIN are subject to a margin of error because they are based on samples; where the sampling error is known to be especially high, because there were very few incident cases of the disease concerned in the SWI95 sample, 95 per cent confidence intervals (each representing a range that has a 95% chance of containing the true value) are quoted in footnotes.

Several general points emerge:

- The different sources often give ***very different estimates***, in terms of both levels and trends. The estimates of disease incidence from the SWI surveys are generally much higher than those from the other sources, reflecting the fact that they include many cases not seen by specialist doctors.
- Estimates from most of the sources show ***year-to-year fluctuations***, and for many of them the time series are currently too short for statistical modelling techniques in order to identify underlying trends.
- In assessing progress so far against the targets, the focus needs to be on the change between 1999/2000 and 2000/01). Bearing in mind the above points, it is not possible to make such an assessment with any confidence based on a ***single year's data***.

After each Table, the key message for each disease group is highlighted.

## Table 2: Musculoskeletal disorders

| | **All** | | **Upper limbs** | | **Back** | | **Lower limbs** | |
|---|---|---|---|---|---|---|---|---|
| | Self-reported (SWI) [1] | Reported by specialist doctors (ODIN) [2] | Self-reported (SWI) [1, 3] | Reported by specialist doctors (ODIN) | Self-reported (SWI)[1] | Reported by specialist doctors (ODIN) [3] | Self-reported (SWI)[1, 4] | Reported by specialist doctors (ODIN) |
| 1995 | 180,000 | .. | 91,000 | .. | 70,000 | .. | 19,000 | .. |
| 1998 | .. | 7,666 | .. | 4,958 | .. | 2,263 | .. | 494 |
| 1999 | .. | 8,635 | .. | 5,174 | .. | 2,715 | .. | 626 |
| 2000 | .. | 7,792 | .. | 5,043 | .. | 2,293 | .. | 372 |

Notes: 1: Individuals with a musculoskeletal disorder affecting more than one part of the body have been included in the SWI figures for each of the parts affected. Conditions affecting internal parts of the body (e.g. hernia) have not been shown separately but are included in the total.
2: The ODIN total is less than the sum of the figures for the parts of the body because individuals may have more than one diagnosis.
3: Includes conditions affecting the neck.
4: Estimate based on very few sample cases: the 95% confidence interval (i.e. the range that has a 95% chance of containing the true value) is 8,000-31,000.

- ***The specialist doctor surveillance scheme for musculoskeletal disorders has not been running long enough to assess trends.***

## Table 3: Stress

| | **Anxiety/depression and other stress** | | **Post-traumatic stress disorder** | |
|---|---|---|---|---|
| | Self-reported (SWI)[1] | Reported by specialist doctors (ODIN) [2] | Self-reported (SWI) | **Reported by specialist doctors (ODIN) [2]** |
| 1995 | 92,000 | .. | .. | **..** |
| 1999 | .. | 5,523 | .. | **432** |
| 2000 | .. | 6,327 | .. | **408** |

Note: 1: Excludes physical conditions ascribed to stress (e.g. heart disease), to avoid double-counting and because in these cases the date of incidence of the stress is not known.
2: ODIN data for stress are only available from 1999.

- ***The specialist doctor surveillance scheme for stress has not been running long enough to assess trends.***

## Table 4: Vibration-related disorders

| | **Hand-Arm Vibration Syndrome (HAVS)** | | **Carpal Tunnel Syndrome (CTS)** | |
|---|---|---|---|---|
| | **New disable-ment benefit cases (IIS) [1]** | Reported to HSE (RIDDOR)[2] | **New disable-ment benefit cases (IIS) [1]** | Reported to HSE (RIDDOR)[2] |
| 1995 | **1,050** | .. | **217** | .. |
| 1998 | **659** | 623 | **246** | 109 |
| 1999 | **498** | 876 | **280** | 212 |
| 2000 | **465** | 905 | **250** | 119 |

Notes : 1: IIS data are for years ending 30 September. Figures exclude cases in coal miners, which are influenced by many factors other than cases actually incident in the year concerned and so will distort the measurement of trends.
2: RIDDOR data are for years ending 31 March.

- ***The underlying incidence of HAVS (including vibration white finger)and CTS appears to be constant or declining.***

## Table 5: Long-latency respiratory disease

| | **Mesothelioma** | | **Asbestosis / other pneumo-conioses** | | **Benign pleural disease** | | **Chronic bronchitis / emphysema** | |
|---|---|---|---|---|---|---|---|---|
| | **Deaths (DCs)** | Reported by specialist doctors (ODIN) | **New disable-ment benefit cases (IIS)** | Deaths (DCs) [1] | **New disable-ment benefit cases (IIS)** | Reported by specialist doctors (ODIN) | **New disable-ment benefit cases (IIS)[2]** | Reported by specialist doctors (ODIN) |
| 1998 | **1,535** | 701 | **870** | 433 | **227** | 625 | **3,423** | 58 |
| 1999 | **1,595** | 1,018 | **868** | 492 | **242** | 1,243 | **1,451** | 129 |
| 2000 | **..** | 964 | **866** | .. | **273** | 1,080 | **600** | 144 |

Notes: 1: Figures include all death certificates mentioning asbestosis except those also mentioning mesothelioma; deaths from other kinds of pneumoconiosis are included where this was coded as the underlying cause of death.
2: Figures distorted by a backlog of cases following a relaxation of the IIS criteria in 1997.

- ***The incidence of asbestos-related disease (including mesothelioma) continues to rise, reflecting exposures from many years ago.***

## Table 6: Short-latency respiratory disease

| | **Asthma** | | | **Other short-latency[4]** |
|---|---|---|---|---|
| | Self-reported (SWI) [1] | **Reported by specialist doctors (ODIN)** [2] | New disable-ment benefit cases (IIS)[3] | **Reported by specialist doctors (ODIN)[2]** |
| 1995 | 10,000 | **851** | 514 | **529** |
| 1998 | .. | **807** | 222 | **481** |
| 1999 | .. | **1,129** | 196 | **498** |
| 2000 | .. | **797** | 168 | **451** |

Notes: 1: Estimate based on very few sample cases: the 95% confidence interval (i.e. the range that has a 95% chance of containing the true value) is 2,000-19,000.
2: 1995 ODIN estimates relate to United Kingdom rather than Great Britain.
3: IIS figures from 1997 were affected by a change in data collections procedures which reduced levels of reporting.
4: Comprises inhalation accidents, infectious diseases, allergic alveolitis and 'other' diagnostic categories.

- ***The underlying incidence of occupational asthma in recent years appears broadly level.***

## Table 7: Skin disease

| | **Contact dermatitis** | | | **Other short-latency[3]** | **Skin cancer** |
|---|---|---|---|---|---|
| | Self-reported (SWI) [1] | **Reported by specialist doctors (ODIN)** | New disable-ment benefit cases (IIS)[2] | **Reported by specialist doctors (ODIN)** | **Reported by specialist doctors (ODIN)** |
| 1995 | 12,000 | **..** | 368 | **..** | **..** |
| 1998 | .. | **3,587** | 271 | **645** | **347** |
| 1999 | .. | **3,933** | 220 | **678** | **339** |
| 2000 | .. | **3,400** | 208 | **518** | **480** |

Notes: 1: Includes other short-latency skin disease. Estimate based on very few sample cases: the 95% confidence interval (i.e. the range that has a 95% chance of containing the true value) is 3,000-22,000.
2: IIS data are for years ending 30 September.
3: Comprises contact urticaria, infective skin disease, mechanical skin disease, folliculitis/acne, nail conditions and other dermatoses.

- ***The underlying incidence of contact dermatitis in recent years appears broadly level.***

## Table 8: Hearing loss

| | **Noise-induced deafness** | |
|---|---|---|
| | **New disablement benefit cases (IIS)** | Reported by specialist doctors (ODIN) |
| 1998 | **258** | 932 |
| 1999 | **316** | 714 |
| 2000 | **226** | 627 |

- ***The incidence of occupational deafness appears to be continuing its long-term downward trend.***

## Table 9: Infections

| | **Infectious diseases** | |
|---|---|---|
| | **Reported by specialist doctors (ODIN)[1]** | Reported to HSE (RIDDOR)[2] |
| 1998 | **1,138** | 105 |
| 1999 | **622** | 94 |
| 2000 | **561** | 93 |

Notes: 1: Affected by a change in the reporting requirements in October 1999 for infections causing diarrhoeal disease, which reduced the number reported.
2: RIDDOR data are for years ending 31 March.

- ***The specialist doctor surveillance scheme for occupational infections has not been running long enough to assess trends.***

## *IV The days lost target*

The days lost indicator combines data for injuries and ill health from different sources, both based on self-reporting.

No new data were published in *Health and Safety Statistics 2000/01*. The data already available are summarised in Table 10.

### Table 10: Days lost due to work-related injuries and ill health

| | Injuries | | Ill health | |
|---|---|---|---|---|
| | Days lost per year (thousand) | Rate per 100 000 workers | Days lost per year (thousand) | Rate per 100 000 workers |
| 1994/95 | 6,991 | 28,770 | .. | .. |
| 1995 | .. | .. | 17,967 | 71,000 |
| 1997/98 | 6,516 | 25,800 | .. | .. |

The next figures for days lost due to injuries will relate to 2000/01 and will be available in early 2002. For ill health, the next data will be for 2001/02 and will be available around Autumn 2002. For 2004/05, the mid-point of the strategy period, the intention is to collect synchronised data on both injuries and ill health (see Days Lost Principle 1 in the *Statistical Note* for more details).

## *V Methodological developments*

For the ill health incidence target, the *Statistical Note* stated that "existing data sources should be refined and new sources developed to meet the needs of progress measurement" and set out a programme of statistical activities to achieve this (see Annex C of the *Note*). Broadly, this programme looked to refining and integrating the existing sources in order to measure progress in the early stages of the strategy, and developing new sources – to be used in conjunction with the old ones, at least initially – in order to measure progress across the full strategy period. This section presents an update on developments with respect to both the existing and the new sources.

### Existing data sources

The current **ODIN** contract ends in March 2002. A call for tenders for the continuation of specialist medical reporting schemes after this date was advertised this summer and a preferred contractor has been selected. The new contract will run for five years, with the possibility of extension for a further five years, thus securing consistent data for the strategy period. The final details are now under discussion with the selected contractor.

Separate work is currently being commissioned to examine how past ODIN data might be used to assess trends, taking into account non-participation and non-response as well as sampling error.

A further **SWI** survey has been commissioned for winter 2001/02, being a re-run of the SWI98/99 survey but administered to all respondents who have ever worked (not just those who worked in the last 12 months). It will also have an additional question to identify new cases (incidence) of work-related illness in the last 12 months and an improvement to the question on working days lost. Resources permitting, results from this will be published around Autumn 2002. We propose to rerun this 2001/02 survey in the winters of 2004/05 and 2009/10.

HSE has also begun to study the influence of awareness and attitudes on self-reports of work-related ill health. We have received outline proposals to address the issue of how raised awareness might cause apparent rises in the measured incidence of occupational illness, and are discussing these further with the potential researchers.

Work to refine the other existing sources (**IIS** and **RIDDOR**) is of lower priority but will be pursued as resources permit.

Finally, HSE has given further thought to the identification of **leading sources** for measuring change. For most of the diseases and disorders covered, the *Statistical Note* identified one of the existing sources as the 'leading source'; these were shown in bold in Tables 2-9 above. However, for **musculoskeletal disorders** and **stress** a decision on this was deferred (see Ill health incidence Principle 1, and Annex B of the *Note*).

We have now concluded that for these two disease groups it is not meaningful to define a single leading source. Certainly ODIN is the only source which provides data for the base year 1999/2000, since no SWI survey was undertaken for that year (the closest was for 1998/99 – and moreover did not give any data on the incidence of new cases as opposed to illness prevalence). It also has advantages over the SWI when it comes to measuring change over time, for example in probably being less affected by sampling error and changing awareness. On the other hand, it is clear from comparing the ODIN data with the available SWI incidence estimates that ODIN misses a large number of self-reported cases of these conditions.

We therefore see the best way forward, based on the data sources currently available, as being to exploit the strengths of both ODIN and the SWI surveys. One possibility would be to use an SWI survey to give 'benchmark' estimates of the incidence of stress and musculoskeletal disorders, and then to update these using percentage changes from the more frequent and timely ODIN data. In other words, ODIN would be the key indicator of change but 'calibrated' by the more broadly-based SWI surveys. A full strategy for **integrating** estimates from the different sources will be developed in the coming years (see General Principle (1) and Ill Health Principle (3) in the *Statistical Note*).

## New sources

The *Statistical Note* listed five potential new sources.

- An HSE-owned workplace-based survey, to provide self-reported data at the level of the workplace as well as the individual.
- General Practitioner-based reporting, to fill the gap in the existing arrangements represented by cases of work-related illness which are not seen by specialist physicians but are presented to GPs .
- Attributable fraction surveys, to estimate the excess of cases of certain conditions (e.g. musculoskeletal disorders or stress) among workers who are exposed to risk factors for these conditions.
- Surveys of the levels of certain hazards or exposures, as a supplementary approach to provide a more immediate measure than health outcome data of the impact of the strategies (especially for diseases with long latencies).
- Measuring trends in awareness, attitudes and behaviours, as a further supplementary approach.

HSE has been exploring the availability of resources for developing these additional sources, and has now initiated a project to investigate their feasibility in more detail.