Introduction

Our Healthier Nation is an action plan for tackling poor health, with the twin goals of:

- Improving the health of everyone;
- Improving the health of the worst off in particular – to narrow the health gap.

Rationale For Choice Of The Four Our Healthier Nation Priority Areas In 1999

In order to achieve the overall goals of the strategy, we have to tackle the four major causes of preventable ill health and premature death: cancer, circulatory disease (coronary heart disease, stroke and related diseases), accidental injury and mental illness. Together they account for around 75 per cent of all deaths in England under the age of 75 years.

Rationale For Setting The National Targets For England

To focus attention on the two overarching goals and to stimulate progress in the four priority areas, four specific health outcome targets have been set. The number of national targets has been kept small because Our Healthier Nation is about action, not about “number crunching”. Targets are a powerful tool for concentrating attention where it is needed. They are not an end in themselves. On their own, targets do not make a strategy, but they can be a way of focusing a strategy. That is what the four national targets are designed to do for Our Healthier Nation.

The task was to identify targets which are amenable to action, which are scientifically based, which are sufficiently challenging to instil an urgency of action, and which are achievable by the best performing public health programmes.

National Targets

The Our Healthier Nation national targets are:

1. Circulatory Diseases
   - To reduce the death rate from heart disease, stroke and related conditions in those aged under 75 years by at least two fifths (40%) by the year 2010.

2. Cancers
   - To reduce the death rate from all cancers amongst those aged under 75 years by at least a fifth (20%) by the year 2010.

3. Accidents
   - To reduce the death rate from accidents among people of all ages by at least one fifth (20%) by the year 2010 and to reduce the rate of serious injury by at least one tenth (10%) by 2010.

4. Mental health
   - To reduce the suicide rate among people of all ages by at least a fifth (20%) by the year 2010.

Target Year
1. Mortality targets:
   - 2010 for all four targets (the average of the three years 2009, 2010 and 2011).
   - Serious injury from accidents target:
   - Financial year 2010/11

**Baseline Year**

1. Mortality targets:
   - 1996 for all four targets (the average of the three years 1995, 1996 and 1997).
2. Serious injury from accidents target:
   - the single financial year 1995/96 (the baseline is a single year as it based on large numbers, and there are problems with consistency of definitions for previous years because of the change to ICD-10 coding starting in 1995/96).

**Sources Of Data**

1. Mortality targets:
   - Office for National Statistics (ONS) mortality statistics from death registrations. Mortality rates are directly age-standardised to allow for changes in the age structure of the population using the European standard population (see Annex 5).
2. Serious injury from accidents target:
   - Hospital Episode Statistics.

**Technical Definitions For The Four Targets**

1. Cancer:
   - All malignant neoplasms: ICD-10 codes C00-C97 inclusive (ICD-9 codes 140-208 inclusive).
   - Age group: under 75.
   - Target reduction by year 2010: at least one fifth (20%).

2. Circulatory Diseases:
   - Includes Heart Disease and Stroke and related conditions: ICD-10 codes I00-I99 inclusive (ICD-9 codes 390-459 inclusive).
     - Age group: under 75;
     - Target reduction by year 2010: at least two fifths (40%).

3. Accidents:
   - Deaths from accidents:
     - ICD-10 codes V01-X59 inclusive (ICD-9 codes E800-E928 excluding E870-E879)
     - Age group: all ages.
     - Target reduction by year 2010: at least one fifth (20%).

   - Serious injury from accidents:
     - Hospital admissions defined by ICD-10 codes as below:
       - Primary diagnosis must indicate an injury, i.e. is in range S00 through T98X
       - External cause code must be in one of the following ranges:
         - V01 - V99 Transport accidents
         - W00 - X59 Other external causes of accidental injury (mostly falls)
       - The injury must be sufficiently serious to require a hospital stay of four days or more
       - Age group: all ages.
       - Target reduction by year 2010: at least one tenth (10%).

       As some records with a primary diagnosis indicating an injury do not contain a valid external cause code, these codes will be scaled out in proportion to the records with a valid cause code before applying the second rule above. Coding of external cause is consistently improving and this correction will decrease in importance as coding approaches 100%.

4. Suicide
   - Intentional self-harm and injury of undetermined intent excluding verdict pending: ICD-10 codes X60-X84, Y10-Y34 excluding Y33.9 (ICD-9 codes E950-E959) plus (E980-E989) minus E988.8 - suicide and undetermined injury less inquest adjourned cases).
   - Age group: all ages.
   - Target reduction by year 2010: at least one fifth (20%).
• Official suicides are those in which the coroner or official recorder has decided there is clear evidence that the injury was self-inflicted and the deceased intended to kill himself. Unofficial suicides or open verdicts are those where there may be doubt about the deceased’s intentions. Research studies show that most open verdicts are in fact suicides. For the purposes of comparisons with other countries, the figures quoted are for official suicides, but for the purpose of measuring overall suicides in England, official suicides and open verdicts are combined.

Changes To Coding Of Mortality Data

The World Health Organization maintains a statistical classification of diseases, injuries, and causes of death, which is internationally recognised and used. Hospital episodes are classified using the tenth revision, ICD-10. For the mortality indicators, however, baseline and target rates were set using the ninth revision, ICD-9, that was current in England at that time for coding cause of death. ICD-10 was introduced for coding mortality from the year 2001. This change requires that ICD-9 based rates be adjusted to make them comparable to current and future ICD-10 based rates. This is done by applying ICD10/9 comparability ratios published by ONS. Further information on the changes to ONS mortality data and the application of comparability ratios can be found in Annex 2. For accidents and suicide, the differences between ICD-10 and ICD-9 are not statistically significant and no adjustment is necessary. For cancers, comparability ratios of 1.013 and 1.009 were used for males and females respectively. For circulatory diseases, ratios of 1.012 and 1.015 were used for males and females respectively. The adjusted male and female deaths are combined to give the adjusted gender deaths. Other consequences of the implementation of ICD-10 are that the definition of accidents has been revised and no longer includes “adverse effects”, and a terminological change to suicides, which are now described as intentional self-harm.

Adjustment Of 95% Confidence Intervals For OHN Indicator Baseline Rates

Elsewhere in the Compendium the ICD10/9 comparability ratios have only been used to adjust annual mortality rates. These annual rates are intended for trend analysis and therefore do not include 95% confidence intervals in their presentation. The OHN indicator baseline rates, however, are three-year averages for which the 95% confidence intervals are given. For circulatory diseases and cancers, where the baseline rates have been adjusted, the confidence intervals must also be adjusted. This is not a simple case of applying the ratio to the upper and lower limits. The ratio itself is an estimate of the true underlying ratio and has an associated variance. This additional variance should be taken into account when calculating the confidence interval of an adjusted rate.

The adjusted 95% confidence intervals were calculated using methods outlined by the National Center For Health Statistics, an agency of the US Centers for Disease Control and Prevention.2 Lower and upper limits are given by:

\[
DSR'_{LL/UL} = DSR' \pm 1.96 \times 100,000 \times \sqrt{\frac{1}{\sum w_i^2} \sum w_i^2 \cdot Var(r'_i)}
\]

(expressed per 100,000 population)

where

- \(DSR'\) is the adjusted directly age-standardised rate
- \(w_i\) is the number, or proportion, of individuals in the standard population in age group \(i\).
- \(r'_i\) is the adjusted crude age-specific rate in the subject population in age group \(i\).
- \(Var(r'_i)\) is the variance of \(r'_i\).

For male and females rates \(Var(r'_i)\) is given by:

\[
Var(r'_i) = \left( r_i^2 Var(C_i) + C_i^2 Var(r_i) + Var(C_i) \cdot Var(r_i) \right)
\]

where

- \(C_i\) is the age-specific ICD10/9 comparability ratio in age group \(i\).
- \(Var(C_i)\) is the variance of \(C_i\).
- \(r_i\) is the unadjusted crude age-specific rate in the subject population in age group \(i\).
- \(Var(r_i)\) is the variance of \(r_i\) and is given by:

\[
Var(r_i) = \frac{r_i (1 - r_i)}{n_i}
\]

where

- \(n_i\) is the number of individuals in the subject population in age group \(i\).
For person rates the adjusted crude age-specific rates $r'_i$ are a weighted average of the separate male and female adjusted rates. The variance $Var(r'_i)$ is also therefore a weighted average of the separate male and female variances and is given by:

$$Var(r'_i) = \frac{n_{mi}^2 \cdot Var(r'_{mi}) + n_{fi}^2 \cdot Var(r'_{fi})}{(n_{mi} + n_{fi})^2}$$

where $Var(r'_{mi})$, $Var(r'_{fi})$ and $Var(r'_{pi})$, are the variances for the male, female and person adjusted crude age-specific rates in the subject population in age group $i$ respectively.

$n_{mi}$ and $n_{fi}$ are the number of male and female individuals in the subject population in age group $i$ respectively.

Age-specific ICD10/9 compatibility ratios were not available for each of the 5-year age groups used in the age-standardisation process. Instead, the Under 75 year ratios published by ONS were applied to all the age groups. The confidence intervals produced are therefore based on the assumption that the ICD10/9 ratio is consistent across the age groups. This is in addition to the general assumption for the adjusted rates that the comparability ratios do not vary across the different areas.

**Further Reading**

The *Our Healthier Nation* website: [www.ohn.gov.uk](http://www.ohn.gov.uk)

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**References**
