A3-2002(1): Cancer deaths at home – Feasibility Study

Study team:
Henryk Olearnik
Michael Rosato
Daniel Eayres
Azim Lakhani

Version 1
(The version number refers to the stage of the study in an iterative process, where the first line of investigation may lead to further issues and investigation before a final decision is made.)
1. Summary:

1.1. Background to the study - The requirements of this section (A3) of the NCHOD work programme for 2002/03 are to:
   - use existing approaches to the analyses of Clinical and Health Indicators to test the feasibility of potential indicators using routine data, based on headings supplied by the Department of Health;
   - raise issues concerning the indicator; and
   - make recommendations about further work and suitability for publication.

The heading for this indicator was ‘Cancer deaths at home’.

1.2. Summary of findings and recommendations –

1.2.1. The following conclusions can be drawn from a non-systematic, background review of the epidemiological and socio-demographic literature published in the UK over the period of last eight years and concerning issues related to cancer deaths at home:
   - at present there is no systematic monitoring of deaths at home using routinely collected data;
   - dying at home, if possible, is preferred by terminally ill patients, most of the general public and primary healthcare professionals;
   - reportedly 86% of cancer patients chose to be cared for and to die at home;
   - only a small proportion, about a quarter of people in Britain (e.g. compared with two fifths in the Netherlands) die at home, half die in hospital and the rest in non-NHS care including hospices and nursing homes;
   - there are wide variations in the proportion of cancer deaths at home in England which may be to some extent explained by deprivation, that is inversely correlated with home cancer death;
   - social, demographic, illness (type of cancer) and psychological factors seem to be associated to some degree with the fact that deaths at home are favoured more by certain patients with terminal cancer;
   - in order to facilitate death at home, intervention and comprehensive home care programmes such as the “hospital at home” scheme have been developed in various countries, however, with inconclusive evidence regarding their effectiveness when compared with standard hospital care;
   - dying at home may influence the decision making process concerning the end of life (e.g. the decision not to give antibiotics to a patient in the final stages of lung cancer);
   - primary health care teams have an increased role if death is anticipated and likely to occur at home;
   - an intensification of home nursing facilities would give a greater number of terminal cancer patients the option of dying in their own homes.

1.2.2. A preliminary analysis of proportion of cancer deaths at home indicates that:
   - about 24 percent of people in England who died from any type of cancer in 1998-2000, died at home;
   - depending on type of cancer, the proportion of persons dying at home in England in 1998-00 varied from 20% (bladder cancer) to about 30% (stomach
cancer) and for Hodgkin’s disease and leukaemia it was significantly smaller, 16% and 14% respectively;

- on average about 4 percent more cancer deaths at home were among men than women;
- for nearly all types of cancers, significantly smaller percentages of deaths at home were among people aged 75 and older;
- the largest relative percentage of most cancer deaths at home was in the age group 35-64;
- significantly more cancer deaths occurred at home in rural and growth areas than in inner London, which may be related to factors such as availability of palliative care facilities, accessibility of services, and level of deprivation;
- there was a similar pattern of cancer deaths at home among both males and females for specific cancers included in this analysis (see embedded Figure 1);
- more than one third of deaths at home related to other cancers that are not included in the Compendium and therefore were not specifically analysed in this report.

1.2.3. This potential new indicator ‘Cancer deaths at home’ provides valid information on the proportion of registered deaths at home from selected types of cancer. It is considered suitable for publication and routine monitoring of cancer deaths at home at various organisational levels (excluding skin cancers other than malignant melanoma and Hodgkin’s disease), and is recommended for inclusion in the Compendium of Clinical and Health Indicators. However, for methodological reasons, only the ‘all malignant neoplasms’ category meets the criteria for a potential Performance Indicator. The decision is to be made by the DH as to which if any cancer deaths at home will be included as the descriptive indicators in the forthcoming 2002 and subsequent Compendia and whether deaths at home from all malignant neoplasms only could be included as a Performance Indicator.

1.2.4. Comprehensive statistical analyses of the proportion of cancers deaths at home carried out as part of this feasibility study suggest that the indirect method of standardisation should be adopted in principle as a best solution to the problem of small numbers. Age and sex standardised rates should be used where appropriate rather than crude rates allowing a National Comparison. Following changes in the ICD mortality coding and the NHS reorganisation, future analyses will be based on ICD-10 and data could be provided additionally for the new Strategic Health Authorities (STHAs) and Primary Care Trusts (PCTs). Figure 4 illustrates the profile of cancer deaths at home at LA level using LA figures (grouped by ONS areas) as proxy for PCT level analysis. DH to advise as to what statistical analyses will be required and at which organisational level.

2. Purpose of the indicator and its rationale:

2.1. The purpose and rationale are to be provided by DH, based on policy and management issues, decisions, evidence-based standards, targets and/or national initiatives. However, it was assumed while conducting this feasibility study that the main purpose of this indicator would be improved and better co-ordinated palliative care for cancer patients in the terminal stages of life, allowing more of them the choice of dying at home.

3. Definition of indicator and its variants:

A3-2002 Cancer_Deaths _At_Home_Study1_V1.doc, December 2002.
3.1. Mortality from respective cancers analysed by place of death.
3.2. Observed numbers and percent of respective cancer deaths that occurred at home in males, females and persons, in the following age groups: 1+, 1-4, 5-14, 15-34, 35-64, 65-74, 75+ presented for calendar year 2000.
3.3. Crude percentage and age-standardised rate of respective cancer deaths at home (per 100 of all respective cancer deaths) in males, females and persons of all ages presented for three year pooled data 1998-2000.
3.4. Results are given for England and Wales, England, Regional Offices, Government Office Regions, ONS classification areas, Health Authorities (HAs), and Local Authorities (LAs) in England.
3.5. Health and Local Authority boundaries are as of April 2001 and as of April 1998 respectively.

4. Numerator:

4.1. Numerator data – Deaths at home classified by underlying cause of death, that occurred in 1998, 1999 and 2000 from the following cancers:
   • all malignant neoplasms (ICD-9 140-208);
   • stomach cancer (ICD-9 151);
   • colorectal cancer (ICD-9 152-154);
   • lung cancer (ICD-9 162);
   • malignant melanoma (ICD-9 172);
   • skin cancers other than malignant melanoma (ICD-9 173);
   • breast cancer (ICD-9 174);
   • cervical cancer (ICD-9 180);
   • prostate cancer (ICD-9 185);
   • bladder cancer (ICD-9 188);
   • Hodgkin’s disease (ICD-9 201);
   • leukaemia (ICD-9 204-208).

4.2. Source of numerator data – Deaths occurrences in DH mortality extract produced by ONS.

4.3. Comments on numerator data – Information about place of death is contained in the communal establishment field and includes either:
   • a 5 digit code of NHS and non-NHS hospital or institution;
   • “H” code which indicates that the person is certified as having died at their home address (it is not possible to ascertain the extent of the problem of missing data in “H” category on the basis of existing information);
   • or “E” code which indicates that the person died elsewhere. This ‘elsewhere’ category can include, for example, someone who dies in the street near their home therefore reducing the number of deaths that could otherwise be classed as ‘death at home’ and subsequently lowering the respective rates.
An overall assessment of data quality in the ‘place of death’ field (based on verbal communication, T Devis, ONS) raises some concerns about accuracy in derivation of categories with regard to types of establishments other than home, the latter remaining the valid category not affected by inconsistencies in coding of NHS and non-NHS establishments.

5. Denominator:

A3-2002 Cancer_Deaths _At_Home_Study1_V1.doc, December 2002.
5.1. Denominator data – All deaths classified by underlying cause of death, that occurred in 1998, 1999 and 2000 from the following cancers:
- all malignant neoplasms (ICD-9 140-208);
- stomach cancer (ICD-9 151);
- colorectal cancer (ICD-9 152-154);
- lung cancer (ICD-9 162);
- malignant melanoma (ICD-9 172);
- skin cancers other than malignant melanoma (ICD-9 173);
- breast cancer (ICD-9 174);
- cervical cancer (ICD-9 180);
- prostate cancer (ICD-9 185);
- bladder cancer (ICD-9 188);
- Hodgkin’s disease (ICD-9 201);
- leukaemia (ICD-9 204-208).

5.2. Source of denominator data – Deaths occurrences in DH mortality extract produced by ONS.

5.3. Comments on denominator data – All deaths from respective types of cancer included deaths in all categories of communal establishment code i.e. deaths in hospitals, hospices, at home, and elsewhere.

6. Statistical Methods:

6.1. Standardisation - Age standardisation facilitates comparisons across geographical areas by controlling for differences in the age structure of local populations. Age-standardised rates have been calculated by both the direct and indirect standardisation methods and both sets are presented here for comparison.

6.2. Directly Age-Standardised Rates - The directly age-standardised rate is the rate of events that would occur in a standard population if that standard population experienced the age-specific rates of a given area.

The standard population mostly used in the Compendium is the European Standard Population. However, this population is not appropriate in this situation (usually the denominator of the rate consists of a general population). For the ‘Cancer deaths at home’ indicator the denominator for the rate is ‘all deaths’ from a specified cancer. The age structure of a ‘population’ of cancer deaths is very different to that of a general population. As a result, the use of a general population standard such as the European Standard Population may bias the results and will give figures that are also more difficult to interpret. Instead, the rates for each cancer have been standardised using the England & Wales all deaths for that cancer as the standard population. Rates for males and females have been calculated using separate male and female standards and as such are not directly comparable. A comparison of the male and female age-standardised rates for England was made by recalculating the female rates using the male standard population.

The formula for the calculation of the directly age-standardised rates and a worked example are given in Annex 4 of the Compendium ‘Data Definitions and User Guide for Computer Files’. The average rate for the three years 1998-00 is calculated by
summing the age-standardised rates for the individual years 1998, 1999, 2000 and dividing by three.

6.3. **Indirectly Age-Standardised Rates** - Indirect standardisation requires the computation of the ratio of an area’s observed number of events to its expected number of events if it had experienced the standard age-specific rates. This age-standardised ratio can be converted into a rate by multiplying it by the crude rate of the standard population. This is the method used in the NHS Performance Indicators.

The standard rates used are those of England & Wales (consistent with the Compendium methodology but England rates may be used instead to make standardisation consistent with the Performance Indicators methodology) and male and female rates have been standardised separately. As with the direct method, comparison of the male and female rates for England has been done by recalculating the female rates using the male standard rates. The rate for persons is standardised for both age and sex.

The formula for the calculation of the indirectly age-standardised rates and a worked example are given in Annex 12 of the Compendium ‘Data Definitions and User Guide for Computer Files’.

6.4. **Confidence Intervals** - Some of the values and factors influencing them may be chance occurrences, with values fluctuating at random between organisations and from year to year. The results should therefore be interpreted with the aid of confidence intervals.

For the percentages, the 95% confidence intervals were calculated using the likelihood-based method described by Aitken et al (see Further reading 12.14), a good approximate of the exact method.

For the directly age-standardised rates the 95% confidence intervals were calculated using a normal approximation and standard errors obtained using the method described by Breslow and Day (see Further reading 12.15). This method is likely to be unreliable when there are fewer than 50 cases (i.e. deaths at home) in an area, hence confidence intervals for rates based on less than 50 cases should be viewed with caution.

For the indirectly age-standardised rates the 95% confidence intervals were calculated by finding the 95% confidence interval of the standardised ratio prior to multiplying through by the crude rate. The confidence interval of the ratio is found using Byar’s Approximation of the Poisson distribution (see Annex 12 of the Compendium ‘Data Definitions and User Guide for Computer Files’).

LL and UL denote the lower and upper limits of the confidence interval of the percentages/rates respectively. The rates at sub-national organisational levels are compared to the England rate and the significant differences are indicated in the ‘National Comparison’ column for the three-year (1998-00) pooled data.

The 95% confidence interval provides a measure of the statistical precision of the rate for an area. It indicates a range that, with 95% confidence, will contain the underlying value of the indicator. If the confidence interval for an area’s rate is outside the range of the national confidence intervals, the difference between the two
rates is considered statistically significant (A – Above or B – Below). If the confidence intervals for two rates overlap (W – Within), in most cases the difference between the rates would not be considered statistically significant.

7. Results and Interpretation of indicator:

7.1. In the three-year period 1998 to 2000 there were 376,674 deaths from all malignant neoplasms in England, of which 89,136 died at home (23.7%). The percentage of deaths at home was slightly higher for males than females (25.3% and 21.9% respectively).

Figure 1 breaks down the cancer deaths at home for both males and females by the type of cancer responsible. It can be seen that the cancers selected for inclusion in this feasibility study account for 64.5% of all male cancer deaths at home and 70.2% of female. Lung cancer was the most common cause of cancer deaths at home for both men and women.

Tables 1-12 (embedded spreadsheet files) give the age-standardised cancer deaths at home rates for the sub-national areas for each of the selected cancers. Each file provides the following:
• number of deaths at home by broad age band in 2000;
• percentage of deaths at home by broad age band in 2000;
• number, percent and directly age-standardised deaths at home rate in 1998-00;
• number, percent and indirectly age-standardised deaths at home rate in 1998-00.

Owing to the problem caused by small numbers, particularly at the local authority level, direct and indirect standardisation methods were used in this feasibility study and their suitability assessed. The problem that occurred for all types of cancers including all malignant neoplasms is illustrated in Figures 5 and 6 using as an example cervical cancer deaths at home.

The distribution of the local authority level directly age-standardised rates for cervical cancer in Figure 5 below shows that nearly all the LA rates are lower than the England average. One would expect the England average to fall somewhere in the middle of the distribution, with roughly equal numbers of LAs below as above.

The observed distribution is highly unlikely, requiring that those LAs above the average have either extremely high rates or extremely large populations, neither of which is the case. On investigation it was found that the distribution is an artefact of the failure of the methodology to handle small numbers. This failure undermines the suitability of the direct standardisation method for this indicator.

The problem of small numbers relates to the zero denominator value (no deaths from a particular cancer) at the HA and LA levels for a specific age group. In such cases the age-specific rate of cancer deaths at home for that age band is effectively missing from the directly age-standardised rate calculation, resulting in an artificially low overall rate. A possible solution to this problem would be to use fewer but wider age bands in the standardisation process to reduce the occurrence of zero denominators. However, the numbers involved are such that for most of the selected cancers the number of age bands would have to be reduced to one, defeating the whole purpose of the standardisation exercise.
The same LA level age-standardised death rates at home for cervical cancer but calculated using the indirectly standardised method is illustrated in Figure 6 that shows the local authority level rates distributed around the England average. A large number of LAs had no cervical cancer deaths at home giving a rate of zero and four LAs had no cervical cancer deaths at all, and therefore no rate. The advantage of the indirectly standardised method in this case is that it requires age-specific rates only for the standard area, which, being England & Wales, has sufficiently large numbers.

Since the indirect method is more robust when dealing with small numbers and consistent with the age-standardisation methodology used in the Clinical Indicators analyses, further discussion of the age-standardised cancer death at home rates is based on the figures obtained through the indirect rather than direct method.

For all malignant neoplasms over the period 1998 to 2000, the national (England) average age-standardised rate of deaths at home was 23.6 per 100 deaths. The rates of deaths at home vary across the selected types of cancer, ranging from 14.3 per 100 for leukaemia to 29.6 per 100 for stomach cancer. It should be noted that for each type of cancer a different standard is applied for its age-standardised rates. Differences between the deaths at home rates of different cancers may reflect differences between their respective all deaths age profile.

Table 13 shows a comparison of the male and female age-standardised death rates at home for the selected cancers. For the purposes of the comparison the rates have been recalculated using the male standards. For all malignant neoplasms, males were slightly more likely to die at home than females (25.3 and 22.7 per 100 respectively) and the difference is statistically significant. This differential in male/female rates is consistent across all the selected types of cancer with the exception of skin cancers other than malignant melanoma where the female rate was slightly higher.

The deaths at home rates for all cancers vary geographically. At the Government Office Region level rates range from 18.9 per 100 in London to 26.9 per 100 in the East of England. Rates are statistically significantly lower compared with England in the North West, London, and the South East. Rates are statistically significantly higher in the North East, West Midlands, East of England, and the South West.

Notable differences also occur between the various ONS area classification groups, ranging from 16.3 per 100 in East Inner London to 27.9 per 100 in Remoter Rural areas. Rates are significantly lower than England’s for Coast and Country Resorts, Established Service Centres, Ports and Industry, Education Centres and Outer London, West Inner London, and East Inner London. Rates are significantly higher for Remoter Rural, Rural Amenity, Coalfields, Established Manufacturing Fringe, and Growth Areas.

Embedded figures 2 and 3 show in the form of maps and scattergrams the distribution of HA rates of deaths at home from all cancers for both males and females, their general pattern at the national level and within each ONS area of classification.

Tables 14 and 15 give a summary of the distribution of LA and HA level deaths at home rates for the selected cancers respectively.
At the LA level, both Hodgkin’s disease and skin cancers other than malignant melanoma have a large number of LAs for which no rate could be calculated. This makes the LA level analysis less feasible for inclusion in the Compendium, even for purely description purposes and by implication PCT level analysis as well. In order to be considered as a useful performance indicator i.e. for comparative purposes, one should be able to compare rates against the national average with a reasonable power of differentiation. Only one category - all malignant neoplasms provides LA rates that are sufficiently robust for this National Comparison, with 49% of LAs having a person deaths at home rate either above (A) or below (B) the England average. This falls to 36% for male rates and 32% of female rates. It is worth noting that Clinical Indicators use publication thresholds of 50 count (denominator) for condition specific and 200 count (denominator) for generic i.e. all malignant neoplasms as a potential Performance Indicator meets these criteria satisfactorily.

The power of the National Comparison is improved at the HA level where for all malignant neoplasms 59% of the person rates can be said to be either above or below the national average (48% and 52% for male and female rates respectively). The other candidates for use as a Performance Indicator at this level are the person rates for lung and colorectal cancer, which satisfy the Clinical Indicator thresholds to a reasonable degree. However, for none of these indicators is the National Comparison able to differentiate more than a third of HAs from the national average.

In summary, therefore, cancer deaths at home rates by sex from all malignant neoplasms, stomach cancer, colorectal cancer, lung cancer, malignant melanoma, breast cancer, cervical cancer, prostate cancer, bladder cancer, and leukaemia may be considered for inclusion in the Compendium as indicators used predominantly for descriptive and monitoring purposes. Only the cancer deaths at home rate for persons (standardised for age and sex) for all malignant neoplasms may be considered as a suitable Performance Indicator.

7.2. Small numbers and data disclosure – In addition to their effect on the choice of standardisation methodology and suitability of the indicator for making comparisons, small numbers also raise the issue of disclosure. Table 16 below summarises the acceptability of publishing analyses at different levels of geography for the selected cancers, considering the potential for disclosure.

7.3. Type of indicator – This is a condition specific, cross-sectional annual comparative indicator.

7.4. Quality of Indicator – The sensitivity, specificity, repeatability and responsiveness to change of the indicator has yet to be tested. This should be done based on a review of a sample of patient case notes plus the monitoring of long term trends and is beyond the scope of the current study.

7.5. Other potential confounding factors – The patterns of providing palliative care for cancer patients in the terminal stages of life may vary between Health Authorities/Local Authorities in terms of extent of treatment and care in hospital, hospices, primary care and community settings.
8. Potential value of indicator:

8.1. To stimulate discussion and encourage local investigation, and to lead to improvement in data quality and quality of care.

9. Potential for follow-up action:

9.1. The more specific questions that are beyond this feasibility study, such as why significantly fewer elderly female cancer patients die at home (which could be directly related to their household composition), can only be answered using more specific data sets (currently beyond the scope of routinely collected data).

10. Suggestions for refining the indicator further:

10.1. The advantage and robustness of the age-standardised rate using indirect standardisation rather than direct one at the LA and PCT level analyses in particular needs to be reviewed in the light of DH comments/suggestions and the appropriate method adopted.

10.2. The analyses should also be performed for the new StHAs to assess their feasibility at that level.

10.3. Future guidelines on disclosure/publishing data based on small numbers will need to be applied.

10.4. Further refinements in the indicator analysis are subject to progress in resolving issues raised in the literature review summary and verification of data validity.

10.5. Extending the feasibility analysis to other specific types of cancers not covered in this report may also be considered.

11. Relevant national initiatives:

11.1. To be identified by DH.
12. Further reading:


13. Tables and Figures:

The following data files are available on request.

Table 01 – All Cancers.xls
Table 02 – Stomach Cancer.xls
Table 03 – Colorectal Cancer.xls
Table 04 – Lung Cancer.xls
Table 05 – Malignant Melanoma.xls
Table 06 – Skin Cancers (Other).xls
Table 07 – Breast Cancer.xls
Table 08 – Cervical Cancer.xls
Table 09 – Prostate Cancer.xls
Table 10 – Bladder Cancer.xls
Table 11 – Hodgkins Disease.xls
Table 12 – Leukaemia.xls

Table 13: Mortality from selected cancers
Comparison of male vs female cancer deaths at home rate, England, 1998 to 2000

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<td>Rate</td>
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Note: *Rates are indirectly age-standardised using England & Wales male death at home rates for the specific cancer as the standard rates for both sexes.
**Table 14: Mortality from selected cancers**

Key statistics for the distribution of indirectly age-standardised deaths at home rates

By Local Authority 1998 to 2000

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<th>England</th>
<th>Sex</th>
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<th>National Comparison</th>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>354</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>354</td>
<td>9.5</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>354</td>
<td>9.5</td>
</tr>
</tbody>
</table>
Table 14: Mortality from selected cancers
Key statistics for the distribution of indirectly age-standardised deaths at home rates
By Local Authority 1998 to 2000

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sex</th>
<th>England</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distribution of Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Count</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Count</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>F</td>
<td>22.1</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>F</td>
<td>22.3</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>M</td>
<td>22.3</td>
</tr>
<tr>
<td>Bladder cancer</td>
<td>M</td>
<td>20.9</td>
</tr>
<tr>
<td>Hodgkin's disease</td>
<td>M</td>
<td>17.1</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>M</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>12.9</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>14.3</td>
</tr>
</tbody>
</table>

Notes:
Rates are per 100 cancer deaths
Rates are for persons unless otherwise specified
The distribution count gives the number of areas for which rates could be calculated. A rate cannot be calculated for an area with no deaths from the specified cancer.
*National Comparison: Rates significantly higher and lower than England rate are indicated by 'A' and 'B' respectively.
### Table 15: Mortality from selected cancers
Key statistics for the distribution of indirectly age-standardised deaths at home rates
By Health Authority 1998 to 2000

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sex</th>
<th>England</th>
<th>Health Authorities (total count = 95)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rate</td>
<td>Distribution of Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>All malignant neoplasms</td>
<td>M</td>
<td>25.3</td>
<td>25.1</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>21.9</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>23.7</td>
<td>23.5</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>M</td>
<td>31.5</td>
<td>30.4</td>
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<tr>
<td></td>
<td>F</td>
<td>26.4</td>
<td>25.2</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>29.6</td>
<td>28.8</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>M</td>
<td>29.2</td>
<td>28.5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>22.3</td>
<td>21.7</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>25.9</td>
<td>25.4</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>M</td>
<td>26.4</td>
<td>26.0</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>25.0</td>
<td>24.4</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>25.9</td>
<td>25.5</td>
</tr>
<tr>
<td>Malignant melanoma</td>
<td>M</td>
<td>31.3</td>
<td>28.9</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>23.8</td>
<td>21.8</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>27.6</td>
<td>26.0</td>
</tr>
<tr>
<td>Other skin cancers</td>
<td>M</td>
<td>19.9</td>
<td>16.5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>20.4</td>
<td>16.4</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>20.1</td>
<td>17.5</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>F</td>
<td>22.1</td>
<td>21.6</td>
</tr>
</tbody>
</table>
### Table 15: Mortality from selected cancers

**Key statistics for the distribution of indirectly age-standardised deaths at home rates**

By Health Authority 1998 to 2000

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Sex</th>
<th>England</th>
<th>Health Authorities (total count = 95)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Rate</td>
<td>Distribution of Rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL</td>
<td>UL</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>F</td>
<td>22.3</td>
<td>20.7 24.0</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>M</td>
<td>22.3</td>
<td>21.7 22.9</td>
</tr>
<tr>
<td>Bladder cancer</td>
<td>M</td>
<td>20.9</td>
<td>19.9 21.9</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>17.5</td>
<td>16.2 18.8</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>19.7</td>
<td>19.0 20.5</td>
</tr>
<tr>
<td>Hodgkin's disease</td>
<td>M</td>
<td>17.1</td>
<td>13.2 21.8</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>15.0</td>
<td>10.9 19.9</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>16.2</td>
<td>13.3 19.4</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>M</td>
<td>15.4</td>
<td>14.4 16.5</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>12.9</td>
<td>11.9 14.0</td>
</tr>
<tr>
<td></td>
<td>P</td>
<td>14.3</td>
<td>13.5 15.0</td>
</tr>
</tbody>
</table>

**Notes:**

Rates are per 100 cancer deaths

Rates are for persons unless otherwise specified

The distribution count gives the number of areas for which rates could be calculated. A rate cannot be calculated for an area with no deaths from the specified cancer.

*National Comparison: Rates significantly higher and lower than England rate are indicated by 'A' and 'B' respectively.*
### Table 16: The effect of small numbers (<5) on cancer deaths at home
By level of geography, England, 1998 to 2000

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Are numbers sufficient for publication at the level of:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>England</td>
</tr>
<tr>
<td>All malignant neoplasms</td>
<td>Yes</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Malignant melanoma</td>
<td>Yes</td>
</tr>
<tr>
<td>Skin cancers (other)</td>
<td>Yes</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Bladder cancer</td>
<td>Yes</td>
</tr>
<tr>
<td>Hodgkin's disease</td>
<td>Yes</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note: Yes = numbers are sufficient for males (M), females (F) and persons (P).
Figure 1: Cancer deaths at home by sex and type of cancer England, 1998 to 2000 (All malignant neoplasms deaths at home = 100%)
Figure 2: Cancer deaths at home from all malignant neoplasms by Health Authority
Indirectly standardised rates (all ages) 1998 to 2000

MALES

Greater Manchester

West Midlands Metropolitan County

Greater London

FEMALES

Greater Manchester

West Midlands Metropolitan County

Greater London

Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Males (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities and not the constituent Health Authorities.
Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Males (all ages), 1998 to 2000

Age-standardised rate per 100 and 95% confidence interval

Note: Data for ONS area classification groups are derived by aggregating data for
the constituent Local Authorities and not the constituent Health Authorities.

A3-2002 Cancer_Deaths_At_Home_Study1_V1.doc, December 2002.
21
Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Males (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities and not the constituent Health Authorities.
Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Females (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities and not the constituent Health Authorities.
Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Females (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities and not the constituent Health Authorities.
Figure 3: Cancer deaths at home from all malignant neoplasms by Health Authorities
Indirectly age-standardised rates for Females (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities and not the constituent Health Authorities.
Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities. Indirectly age-standardised rates for Persons (all ages), 1998 to 2000.

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities.
Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities
Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for
the constituent Local Authorities.
Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities. Indirectly age-standardised rates for Persons (all ages), 1998 to 2000.

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities.
Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities
Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities.
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Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

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Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities
Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

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Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities.
Clinical Indicator Feasibility Study – Cancer deaths at home

Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities
Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for the constituent Local Authorities.
Figure 4: Cancer deaths at home from all malignant neoplasms by Local Authorities
Indirectly age-standardised rates for Persons (all ages), 1998 to 2000

Note: Data for ONS area classification groups are derived by aggregating data for
the constituent Local Authorities.
Figure 5: Cancer deaths at home from cervical cancer (ICD-9 180) Distribution of directly age-standardised rates (all ages) By Local Authority, 1998 to 2000

Figure 6: Cancer deaths at home from cervical cancer (ICD-9 180) Distribution of indirectly age-standardised rates (all ages) By Local Authority, 1998 to 2000