# Cancer mortality

<table>
<thead>
<tr>
<th>Indicator name</th>
<th>Cancer mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment or residence indicator</td>
<td>Residence</td>
</tr>
<tr>
<td>Sources</td>
<td>National Records of Scotland</td>
</tr>
<tr>
<td>Peer group</td>
<td>Scottish NHS Board Area; Scottish Cancer Networks.</td>
</tr>
</tbody>
</table>

Death records are allocated to the NHS Board Area of Residence if resident within Scotland, otherwise to the NHS Board Area of Occurrence.

### Inclusions

All cancer (excluding benign tumours and non-melanoma skin cancer) death registrations - Data collected between 01 January 1995 and 2016.

### Exclusions

Non-melanoma skin cancer (NMSC) (ICD-10 C44) is excluded from analyses of all cancers combined for the following reasons:
- In the interests of comparison with other countries, because not all cancer registries collect data on NMSC.
- Only the first occurrence of a basal cell carcinoma (the most common type of NMSC) is collected in Scotland because they are so common.

NMSC are very common, but do not usually result in death. Exclusion of NMSC from the mortality statistics for all cancers has very limited impact because case fatality is so low.

All brain and CNS tumours are excluded as this category contains some ICD-10 D code tumours (benign tumours).

### Methodology

National Records of Scotland (NRS), formerly General Register Office for Scotland (GROS), classifies the underlying cause of death (in terms of the International Statistical Classification of Diseases and Related Health Problems) on the basis of the information collected on the death certificate together with any additional information provided by official sources, such as the doctor who certified the death (following a request from NRS for further details), pathologists, Procurators Fiscal or the Crown Office.

Years of death for which different ICD editions were in force:

- ICD-9 (1979-1999)
- ICD-10 (2000 onwards)

Causes of death for years 1979-1999 have been converted from ICD-9 codes to ICD-10.

European age-standardised incidence rates (EASRs): The rate that would have been found if the population in Scotland had the same age composition as the hypothetical standard European population. The 2013 European standard Population
Cancer mortality

(ESP2013) has been used to calculate EASRs within this dashboard.

**Level one**
Cancer mortality EASRs are displayed at Scotland, Cancer Network* and health board of residence (or occurrence) geography level.

*North Cancer Alliance: NHS Grampian, NHS Highland, NHS Orkney, NHS Tayside and NHS Western Isles.
West of Scotland Cancer network: NHS Ayrshire & Arran, NHS Forth Valley, NHS Greater Glasgow & Clyde and NHS Lanarkshire.

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Crude rate (CR) (number of cancer death registrations/population *100,000) x Hypothetical European population weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denominator</td>
<td>100,000</td>
</tr>
<tr>
<td>Rate/ratio</td>
<td>EASR per 100,000 person years at risk</td>
</tr>
</tbody>
</table>

**Worked example**
European Age Sex Standardised Rate (EASR) using ESP2013
For each 5 year age group, the crude rate is calculated and then the weighted average of all age groups is taken based on the weightings of the 2013 European Standard Population, to give the overall EASR.

\[
\text{i.e. (CR for <5s*5,000 + CR for 5-9*5,500+...CR for 90+*1,000)/100,000}
\]

**Level two and three**
Level two only shows counts and crude rates. NHS Boards can only see their own data and Scotland comparator data.

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Number of cancer death registrations</th>
</tr>
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<tbody>
<tr>
<td>Denominator</td>
<td>Scottish/NHS Board Population</td>
</tr>
<tr>
<td>Rate /ratio</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Worked example**
Number of cancer death registrations /population * 100,000

24,682 cancers in all persons in Scotland in 1992/5,085,620 (pop of Scotland) *100,000 = 485.33 per 100,000 person years at risk.

Additional notes