Deaths in adult, general critical care units in England and Wales, 2007 to 2009

Question

How many deaths occurred in adult, general critical care units in England and Wales for each year from 2007 to 2009? How many of these were brainstem deaths?

Background to the Case Mix Programme

The Case Mix Programme (CMP) is the national, comparative audit of patient outcomes from adult, critical care units in England, Wales and Northern Ireland. The CMP recruits predominantly adult, general critical care units. Adult, general critical care units are defined as either standalone intensive care units (ICUs) or combined intensive care/high dependency units (ICU/HDUs). Participation in the CMP is voluntary; currently, approximately 90% of adult, general critical care units in England, Wales and Northern Ireland are participating. The CMP is included as a national clinical audit for the Department of Health Quality Accounts 2010/2011 (http://www.dh.gov.uk/en/Healthcare/Qualityaccounts/index.htm).

CMP specified data are recorded prospectively and abstracted retrospectively by trained data collectors according to precise rules and definitions - set out in the ICNARC Case Mix Programme Dataset Specification. Data collectors from each unit are trained prior to commencing data collection with retraining of existing staff, or training of new staff, also available. CMP training courses are held at least four times per year.

CMP specified data are collected on consecutive admissions to each participating critical care unit and are submitted to ICNARC quarterly. Data are validated locally, on data entry, and then undergo extensive central validation, for completeness, illogicalities and inconsistencies, with data validation reports returned to units for correction and/or confirmation. The validation process is repeated until all queries have been resolved and then the data are incorporated into the CMP Database (CMPD).

Participating units receive comparative data analysis reports on outcomes and key quality indicators, in which they can identify their own unit data and compare with all units participating in the CMP. In addition, staff at units can interrogate the CMPD by submitting analysis requests which are provided free-of-charge.

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Source: Case Mix Programme Database
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Data collected for the CMP include alphanumeric unit/admission identifiers, demographics (e.g. age, sex, ethnicity), case mix (e.g. acute severity, comorbidity, surgical status, reason for admission), outcome (e.g. unit/acute hospital survival) and activity (e.g. unit/acute hospital length of stay) for each admission to each critical care unit.

Details of the timing and overview of data collected for the CMP are shown in Figure 1.

**Figure 1: Timing and overview of data collected for the Case Mix Programme**

Raw data, rather than derived variables (e.g. date of birth rather than age in years etc.), are collected for all variables, where possible. Data are collected for each admission and readmissions are linked.

**Available data for report**

258,000 admissions to 184 adult, general critical care units  
1 January 2007 – 31 December 2009

**Selection of Cases**

All admissions to NHS adult, general critical care units in England and Wales that were participating in the Case Mix Programme between 1 January 2007 and 31 December 2009 were included in the analysis.
Note that although the Case Mix Programme covers Northern Ireland, these units have not been included for consistency with published data on national death registrations available in the Mortality statistics (Series DR) reports from the Office for National Statistics (http://www.statistics.gov.uk).

Also note that this report does not include deaths occurring in specialist critical care units (e.g. neurosurgical units, cardiothoracic units), standalone high dependency units or independent sector (non-NHS) critical care units. The Case Mix Programme does not have sufficient coverage in any of these settings to reliably extrapolate to national figures.

Definitions for variables included

A patient is recorded as brainstem dead if brainstem death tests have been conducted according to the current Department of Health Statement on brainstem death and documented in any part of the permanent written or electronic patient record.

The observed numbers of deaths were extrapolated to estimate the total numbers of deaths in all adult, general critical care units in England and Wales. This extrapolation was performed by weighting the observed values according to the percentage coverage of the Case Mix Programme Database for that year, relative to the total of 218 adult, general critical care units in England and Wales.

Results

Table 1 summarises the observed and extrapolated numbers of deaths and numbers of brainstem deaths in adult, general critical care units in England and Wales during 2007, 2008 and 2009.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of admissions in CMPD</th>
<th>Coverage of CMPD*</th>
<th>Number of deaths (observed)</th>
<th>Number of deaths (extrapolated†)</th>
<th>Number of brainstem deaths (observed)</th>
<th>Number of brainstem deaths (extrapolated†)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>79,701</td>
<td>66%</td>
<td>14,811</td>
<td>22,300</td>
<td>619</td>
<td>930</td>
</tr>
<tr>
<td>2008</td>
<td>88,157</td>
<td>71%</td>
<td>15,916</td>
<td>22,500</td>
<td>657</td>
<td>930</td>
</tr>
<tr>
<td>2009</td>
<td>90,142</td>
<td>72%</td>
<td>15,947</td>
<td>22,200</td>
<td>656</td>
<td>910</td>
</tr>
</tbody>
</table>

*Estimated percentage of all admissions to adult, general critical care units in England and Wales included in the Case Mix Programme Database
†Estimated total number of deaths in all adult, general critical care units in England and Wales

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Source: Case Mix Programme Database
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Acknowledgement

Please acknowledge the source of these data as follows:

“These data derive from the Case Mix Programme Database. The Case Mix Programme is the national, comparative audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). These analyses are based on data for 258,000 admissions to 184 adult, general critical care units based in NHS hospitals geographically spread across England and Wales. For more information on the representativeness and quality of these data, please contact ICNARC.”

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Source: Case Mix Programme Database
21 January 2011

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