Mechanically ventilated admissions

Question

To identify the number of mechanically ventilated admissions across all adult, general critical care units participating in the Case Mix Programme (CMP), from 1 April 2011 to 31 March 2012, and to extrapolate this to obtain an annual estimate for all adult, general critical care units across England, Wales and Northern Ireland.

Available data for report

133,291 admissions to 209 adult, general critical care units
1 April 2011 – 31 March 2012

Selection of Cases

All admissions to all adult, general critical care units (i.e. excluding specialist critical care units and standalone high dependency units) that were participating in the Case Mix Programme (CMP) from 1 April 2011 to 31 March 2012 were included in the analysis.

Definitions for variables included

Mechanical ventilation was identified by the recording of advanced respiratory support on at least one calendar day in the field Advanced respiratory support days from the NHS Critical Care Minimum Data Set. Please refer to Appendix A for full definition.
Results

Table 1: Number of mechanically ventilated admissions across all adult, general critical care units participating in the Case Mix Programme and nationally across England, Wales and Northern Ireland, 1 April 2011 to 31 March 2012

<table>
<thead>
<tr>
<th></th>
<th>All adult, general critical care units participating in the CMP</th>
<th>All adult, general critical care units in England, Wales and Northern Ireland†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of adult, general critical care units</td>
<td>209</td>
<td>229</td>
</tr>
<tr>
<td>Total number of admissions, n</td>
<td>133,291</td>
<td>153,700</td>
</tr>
<tr>
<td>Number of mechanically ventilated admissions, n (%) [N]</td>
<td>59,997 (45.0)</td>
<td>69,200 (45.0)</td>
</tr>
<tr>
<td>Duration of mechanical ventilation, median calendar days (IQR) [N]</td>
<td>2 (2, 6)</td>
<td>-</td>
</tr>
</tbody>
</table>

IQR: interquartile range

†This is an extrapolation to all adult, general critical care units in England, Wales and Northern Ireland based on data for 133,291 admissions to 209 adult, general critical care units (i.e. excluding admissions to specialist critical care units or standalone high dependency units) participating in the Case Mix Programme Database between 1 April 2011 to 31 March 2012.

Acknowledgement

Please acknowledge the source of these data in all future presentations (oral and/or written), 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 133,291 admissions to 209 adult, general critical care units based in NHS hospitals geographically spread across England, Wales and Northern Ireland. For more information on the representativeness and quality of these data, please contact ICNARC.”
Appendix A – Definition of Respiratory support days

Taken from the ICNARC Case Mix Programme Dataset Specification, Version 3.1

Respiratory support days

Fields: Basic respiratory support days
Advanced respiratory support days

Number of data items: Two
Units of measurement: Calendar days

Definition for collection:

- a calendar day is defined as any complete calendar day (00:00-23:59) or part thereof e.g. a patient admitted on 1 January 2006 at 23:45 and discharged on 3 January 2006 at 00:10 would be recorded as having received three calendar days of care
- specifies the number of calendar days during which the admission received any basic or advanced respiratory support whilst on your unit
- record 1, 2, 3 etc for one, two, three etc calendar days; record 998 for 998 or more calendar days; record 999 for support occurring but number of days not known
- Advanced Respiratory - indicated by one or more of the following (see diagram):
  - admissions receiving invasive mechanical ventilatory support applied via a trans-laryngeal tube or applied via a tracheostomy
  - admissions receiving BiPAP (bilevel positive airway pressure) applied via a trans-laryngeal tracheal tube or applied via a tracheostomy
  - admissions receiving CPAP (continuous positive airway pressure) via a trans-laryngeal tracheal tube
admissions receiving extracorporeal respiratory support

admissions receiving mask/hood CPAP or mask/hood BiPAP is not considered advanced respiratory support

- **Basic Respiratory** - indicated by one or more of the following (see diagram):
  
  - admissions receiving more than 50% oxygen delivered by a face mask (except those receiving short-term increases in FiO₂, e.g. during transfer, for physiotherapy, etc.
  
  - admissions receiving close observation due to the potential for acute deterioration to the point of requiring advanced respiratory monitoring and support e.g. severely compromised airway, deteriorating respiratory muscle function, etc.
  
  - admissions receiving physiotherapy or suction to clear secretions, at least two hourly, either via a tracheostomy, a minitracheostomy or in the absence of an artificial airway
  
  - admissions recently (i.e. within 24 hours) extubated after a period of intubation
  
  - admissions recently (i.e. within 24 hours) extubated after a period (i.e. more than 24 hours) of mechanical ventilation via an endotracheal tube
  
  - admissions receiving mask/hood CPAP or mask/hood BiPAP or non-invasive ventilation
  
  - admissions receiving CPAP via a tracheostomy
  
  - admissions intubated to protect their airway but receiving no ventilatory support and who are otherwise stable.

- **Note:** If advanced and basic respiratory monitoring and support occur simultaneously, then only advanced respiratory monitoring and support should be recorded.

- The following diagram may aid categorisation to advanced or basic respiratory support
Justification

This field is part of the NHS Critical Care Minimum Data Set (CCMDS) approved by the Department of Health and supported by the Intensive Care Society (DSCN: 25/2008 Version 1.1). These data support local, regional and national analysis, commissioning and Payment by Results (PbR). Level of care definitions are based on ICS Standards and Guidelines 2009

Krishna Patel
Statistical Research Assistant
Source: Case Mix Programme Database
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